



SNIPING RIFLES IN THE WAR AGAINST JAPAN 1941–45

JOHN WALTER





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INTRODUCTION

A close-up of the M1C Garand rifle's breech and M82 sight, the culmination of US sniping-rifle development in World War II. Gas tapped from a port under the muzzle forces a spring-loaded operating rod backward, acting on a roller on the right side of the bolt to rotate the locking lugs out of engagement. The bolt and operating rod assembly then retreats, ejecting a spent case and re-cocking the hammer, then returns to reload and re-lock the bolt. (Morphy Auctions)

It is fair to say that the rise of Japanese militarism, no matter how obvious it became amid the brutality of the Second Sino-Japanese War (1937–45), was rarely seen as an immediate threat by the colonial powers. Consequently, the attack on Pearl Harbor on December 7, 1941, came as an unpleasant surprise. Much of the decisive combat in the Pacific Theater took place in the air or at sea, with the widespread use of carrier-borne aircraft, submarine warfare, and naval battles such as Coral Sea (May 4–8, 1942) and Midway (June 4–7, 1942). Allied land forces had to master the art of amphibious landing on Pacific islands and atolls which were often protected by razor-sharp coral reefs and well-fortified by their Japanese occupiers.

Sniping in the Pacific Theater was initially conducted largely by the Imperial Japanese Army (IJA). Dense jungle foliage provided excellent cover from which experienced marksmen could disrupt advances not only by picking off commanders but also simply by instilling fear into their opponents. This phase was comparatively short-lived, however, as first the Australians and then the US armed forces (with minimal British input beyond Burma and north-eastern India) grew in confidence owing to the ever-increasing availability of better equipment. Training which had once been little more than learning by experience was eventually regularized, suitable schools being created on local and, in some cases, national bases; but this had taken time.

One reason for the delayed change of fortunes was the low esteem in which snipers were widely held. Much of the weaponry that survived World War I had been discarded, leaving only small numbers of sniping rifles and optical sights in store, while high-ranking officers and military administrators alike had all but forgotten experiences such as those of the Australian and New Zealand Army Corps (ANZAC) units at Gallipoli, where a brutal confrontation with Ottoman Army snipers had led to the rise of “super snipers” such as Trooper William E. “Billy” Sing of the Australian Imperial Force; or the carnage of the early days on the Western Front, when German



A US serviceman takes aim with his M1903A4 Springfield sniping rifle, fitted with the standard M73B1 sight. His target may perhaps be a Japanese opponent ensconced in a treetop but his apparent lack of concern about concealment and a lack of any other equipment may indicate that he is simply undergoing training. (Tom Laemlein/Armor Plate Press)

snipers had taken such a terrible toll of their British adversaries. Despite the best efforts of chroniclers such as Hesketh V. Hesketh-Prichard and Herbert W. McBride, both of whom had propounded highly effectual training programs, lessons had to be learned anew.

Essential to the learning process was the availability of sufficient equipment. Efforts were soon being made to collect and refurbish sniping rifles and sights that remained in store, but the quantities were comparatively small in view of the escalation of the war in Asia and the Pacific. Supplies of rifles such as No. 3 Enfields (the old P14) and M1903 Springfield military target rifles, fitted with a variety of sights, enabled Allied snipers to make valuable contributions that helped to slow if not halt Japanese advances in locations such as New Guinea. They could never be a long-term solution, however. Consequently, efforts to develop more appropriate weapons and then manufacture them in quantity were accelerated whenever possible.

National output reflected levels of industrialization. The Japanese produced perhaps 9,200 Type 97 Arisaka sniping rifles in the Kokura and Nagoya arsenals prior to the Pearl Harbor attack, followed by no more than 11,000 Type 99 sniping rifles before Japanese arms-production deteriorated markedly as World War II ran its course. Production of the British No. 4 Mk I (T) sniping rifle, introduced to service only in 1942, reached 28,500. Comparatively few of these reached the Pacific Theater, however, where the principal newly made sniping rifle of the Australian Army forces was the heavy-barrel SMLE Mk III HT. At least 26,500 M1903A4 Springfield bolt-action sniping rifles and the first batches of nearly 8,000 specially adapted M1C Garand autoloaders in the hands of US forces duly contributed to sniping techniques and tactics that would help to drive Japanese snipers from their lairs often simply by raking treetops with automatic fire; but it was a long, hard road to VJ Day on August 15, 1945.



DEVELOPMENT

The sniper's weapons

The innovative T3 Carbine/M1 Sniperscope combination entered US service in late 1944. Note the lamp under the forend and the bulky powerpack. The T23 flash hider was developed for use with the T3 but later used much more widely. The 30-round magazine shown here proved to be too heavy for a magazine catch that had been designed to hold the original 15-round magazine, and so did not see service with the M1 Carbine during the Pacific War. (Rock Island Auction)

Though sniping was paid almost no attention in 1941, each combatant nation's military had a well-established infantry rifle, all of which had a lengthy pedigree.



During a training exercise, a soldier in camouflage dress holds an M1903A4 Springfield sniping rifle fitted with an M73B1 telescopic sight. (PhotoQuest/Getty Images)



Surrounded by a jungle escarpment, a Japanese soldier takes aim at his target through the raised back-sight leaf of his standard Type 38 infantry rifle. Rifles of this type were often pressed into service owing to a widespread lack of sniping weapons. (Author's archives)

JAPANESE SNIPING RIFLES

The Type 97

The 6.5mm Type 97 sniping rifle (九七式狙撃銃, *kū-nana-shiki sogekijū*, “97-Type aimed-fire gun”) was adopted for service with the IJA in 1937. Trials had begun in 1935 on the basis of Japanese combat experience in Manchuria, development being delegated to Toyama Military Academy and the IJA's infantry school under the leadership of Colonel Tatsumi Namio.

The 38th Year Type rifle, adopted as the IJA's service weapon in May 1906, was made of excellent material and proved to be exceptionally strong and very durable. Chambered for the 6.5×50mm semi-rimmed cartridge, it was 50in long, had a 31.4in barrel with four- or six-groove polygonal rifling, and weighed 9.08lb empty. The internal box magazine held five rounds and the leaf-type back sight was graduated to 2,400m (2,625yd).



Two views of a sniper adaptation of the Japanese 38th Year Type rifle, some 700 of which were produced by Kokura Arsenal for evaluation and testing in trials that led to the adoption of the perfected Type 97 sniping rifle. (Rock Island Auction)

About 700 “test Type 38” rifles made in Kokura Arsenal were followed by 8,000–9,000 Type 97 sniping rifles assembled in Kokura Arsenal in 1938–39 and perhaps 14,500 in Nagoya Arsenal in 1938–43. The Type 97 retained the standard leaf-type back sight, graduated from 500m (547yd) through 2,400m, with a laterally adjustable front-sight blade protected by cutaway wings. The bolt handle was lengthened, bent downward, and given a “plum shape” ball. A flimsy-looking monopod





was attached by a transverse screw to a block attached to the barrel band, which also bore the sling swivel. The monopod legs were held to two self-sprung wing plates by a transverse rivet. When opened, the wing plates sprung in above lugs on the leg-block to hold the monopod in place. Cutouts in the rolled-over tip of each wing plate allowed the legs to spring into their folded position when rotated forward and to lie up against the forend.

A Kokura-made Type 97 sniping rifle, fitted with the standard 2.5x Type 97 telescopic sight. Note the sliding bolt cover and the monopod attached to the forend. (Rock Island Auction)

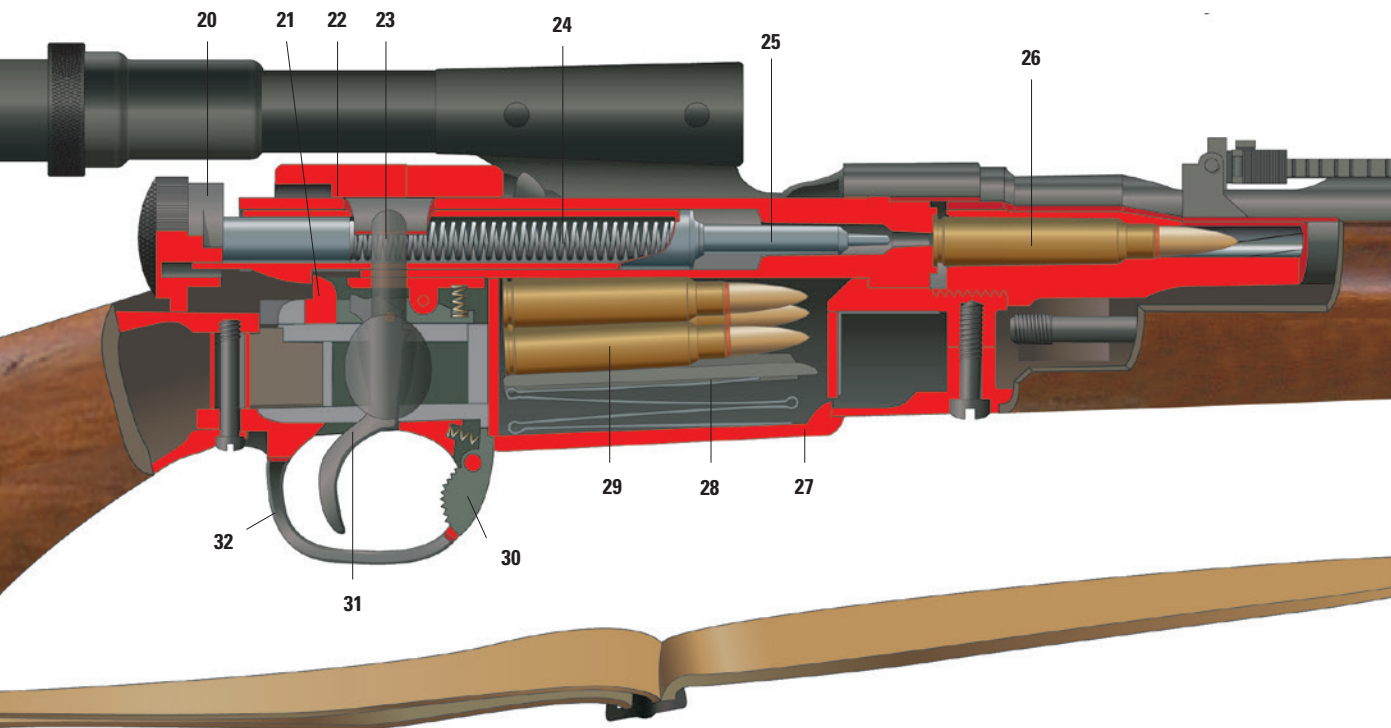


THE TYPE 97 EXPOSED

6.5mm Arisaka Type 97 sniping rifle

- | | | |
|------------------------|--|----------------------------------|
| 1. Buttplate | 12. Cleaning rod | 23. Bolt handle |
| 2. Butt | 13. Bayonet lug | 24. Firing-pin spring |
| 3. Optical sight | 14. Monopod, open and closed | 25. Firing pin |
| 4. Optical-sight mount | 15. Monopod bracket | 26. Chambered cartridge |
| 5. Receiver | 16. Sling swivel, front | 27. Magazine floorplate |
| 6. Barrel | 17. Sling | 28. Magazine spring and elevator |
| 7. Back sight | 18. Sling swivel, rear | 29. Cartridges in magazine |
| 8. Handguard | 19. Meiji 38th Year Type sword-bayonet | 30. Magazine floorplate catch |
| 9. Barrel band | 20. Cocking piece | 31. Trigger |
| 10. Nosecap | 21. Sear | 32. Trigger guard |
| 11. Front sight | 22. Bolt | |





This comparative view of a late-production 7.7mm Type 99 short rifle and a 6.5mm 38th Year Type rifle shows the clumsiness of the latter to good advantage. Adopting a short rifle allowed production to be undertaken in several factories simultaneously; and as this was long before the course of the war went against Japan, quality remained high. When fighting ended in August 1945, at least 3.5 million Type 99 rifles had been made by arsenals in Kokura and Nagoya, in Jinsen in Japanese-occupied Korea, and in Hoten (Mukden) in Manchuria, with the assistance of subcontractors such as Dai-Nippon Heiki Kogyo, Howa Jukogyo, Izawa Juho, Kayaba Kogyo, Toyo Kogyo, and Tokyo Juki Kogyo. (Rock Island Auction)

Kokura-made examples, generally well made of good-quality material, had flat buttplates, spring-retained barrel bands, and polished bolt faces. Nagoya-made examples usually had round-edged buttplates, 2,200m (2,405yd) back sights with an aperture on the slider, screw-retained barrel bands, chromed bolts, and the forend beneath the barrel routed-out in an attempt to improve accuracy by minimizing contact between wood and metal. A noticeable deterioration in quality occurred toward the end of production, chrome-plating of the bolt face being replaced by bluing in the region of rifle 7000, and the monopod being discarded on most rifles numbered after 9450.

A mount for the 2.5× Type 97 telescopic sight, reportedly derived from the commercially available Nikko Model 11, was pegged and screwed into the left side of the body. The sight was held in a baseplate-dovetail by a radial latch and a leaf spring. The combination of rifle and sight weighed about 10.1lb.

The Type 99

After the Second Sino-Japanese War began in July 1937, the Japanese encountered Chinese troops armed with 7.92mm rifles. Combat highlighted the poor long-range performance of the Japanese 6.5mm cartridge, and so 300 38th Year Type rifles were modified in Kokura Arsenal to accept an experimental 7.7mm semi-rimmed cartridge. Tests at Futsu Proving Ground showed the conversion to be effective, allowing specifications for a new rifle to be finalized in April 1939. Two rifles were then tested against similarly modified carbines, which predictably displayed unacceptable muzzle blast.



MARKINGS ON JAPANESE SNIPING RIFLES

Japanese service-issue rifles bore the imperial family identifier, known as a *mon*, taking the form of a stylized chrysanthemum flower over the chamber together with the designation in katakana ideographs – for example, 九七式 (*kunana shiki*, “38 Year Type”) or 九九式 (*kuku shiki*, “99 Type”).

Serial numbers of the Type 99 series were generally in blocks of 100,000 with a katakana prefix, accompanied by the arsenal symbol and often that of the subcontractor responsible for manufacture. The order of prefixes was taken from Iroha, a poem embodying all of the katakana characters in the syllabary. The first ten were *i, ro, ha, ni, ho, he, to, chi, ri,* and *nu*, but only Nagoya Arsenal seems to have used all of these, reaching the *wo*-prefix block (the twelfth katakana character) shortly before World War II ended. Rifles made by private

contractors were accepted by government inspectors and bore an appropriate arsenal mark, Nagoya Arsenal's being commonly encountered.



The mounting plate found on the Type 99 sniping rifle, showing how the Type 2 sight-base is locked in its dovetail by a spring latch. (Morphy Auctions)

Kokura Arsenal's simplified breech action failed endurance tests, however, and so, by May 1939, the Nagoya Rifle Plan No. 1 had developed into the 7.7mm Type 99 rifle, a few thousand of which, without prefixed numbers, were hastily made in Toriimatsu. Service showed the 50in-long rifle to be clumsy, and so the Type 99 short rifle – only 43.9in long and with a 25.5in four-groove barrel – appeared in 1940. The five-round internal box magazine was retained, but the leaf of the back sight was graduated only to 1,500m (1,640yd). A sword-bayonet could be attached beneath the muzzle.





The integral mount and elevation drum of optical sight 218, the experimental model issued with the experimental Japanese 6.5mm sniping rifle. (Rock Island Auction)

JAPANESE OPTICAL SIGHTS

The 2.5× **Type 97** and 4× **Type 99** telescopic sights were held in a baseplate-dovetail by a radial latch. Though the design of the sights differ considerably – the Type 97 protruding backward from the mount while the Type 99 was more conventionally placed approximately centrally – the sight-body and attachment plate or “mount” were cast in a single piece. Offsetting the mount to the left allowed reloading with single cartridges or from the standard five-round charger, but made the rifle-and-sight combination somewhat awkward.

The sights bore a variety of markings, usually etched into the rear of the tube on the Type 97 or the front of the Type 99.

A typical Type 97 example reads “2.5×10°” (indicating the magnification and field of view) above a maker’s mark and the sight number, and often “J.E.S.” for “Japan Engineering Standard” and katakana characters ネジ (*neji*, “screw”). The Type 99 is marked similarly, apart from the magnification/field-of-view line, which reads “4×7°.” It has been suggested that at least 45 orders for the Type 97 were placed with eight optical-instrument manufacturers, six of whom also made the Type 99, for which 11 orders are thought to have been placed; one additional company made the Type 99 only.



A top view of Type 99 rifle 1468, made in Nagoya Arsenal. Note how offsetting the 2.5× Type 97 sight to the left of the bore-line allows the open sights to be used. Markings include the imperial chrysanthemum above the designation over the chamber, and the serial number below the factory identifier on the body-bridge. The sight, no. 18278 in a separate “all-sights” series, bears the mark of the Tokyo Kogata Kikai KK factory and the customary acknowledgment of compliance with Japanese engineering standards. (Rock Island Auction)



A Type 2 sight mounted on a Type 99 short rifle. Note the hexagonal-head bolts. (Rock Island Auction)

It is believed that serial numbers on the sights were prescribed in each individual order on a cumulative basis, as they can run into five figures and none of the individual contractors made as many. The mounts usually bear the designation and the rifle serial number, accompanied on Nagoya-made items by the encircled katakana identifier *i*.

Made only by Tokyo Shibaura Denki KK and Nihon Taipuraitā KK toward the end of World War II, the 4× **Type 2** telescopic sight has a lens tube that can slide within the one-piece two-ring mount. Bolts or screws on the front mount allow a limited amount of lateral adjustment, though the method is comparatively crude and accurate adjustments are difficult to make.



Another Type 2 sight, numbered 17833, on a Type 99 short rifle; the sight is missing the screw-on rear lens cover. This mount relies on three adjustment screws on the front ring to alter the position of the sight tube, and thus the aim-point. (Australian War Memorial REL/07214)



Type 99 with the standard 4× Type 99 telescopic sight. This particular rifle has anti-aircraft “lead bars” fitted to the back sight. (Rock Island Auction)

The 7.7mm Type 99 sniping rifle (九九式狙撃銃, *Kūkū-shiki sogekijū*, “99-type aimed-fire gun”), said to have been developed late in 1941 and introduced in June 1942 at a time when the “23rd series Type 99 rifles” were being made at Kokura Arsenal, was intended to replace the Type 97 sniping rifle, but assembly of the latter continued for a short period to make use of existing components.

The Type 99 sniping rifle retained the basic features of its predecessor, including the sight-mount, bolt, and monopod. Kokura Arsenal assembled





only about 850 Type 99 sniping rifles in 1942, fitted with the 2.5× Type 97 sight, while Nagoya Arsenal produced about 10,000 examples in 1943–45. Most of the Nagoya-made rifles had the 4× Type 99 telescopic sight, but about 2,000 examples, generally numbered in the 5100–6800 group, were fitted with the Type 97 sight – probably to make use of those sights delivered in accordance with existing orders, even though production had switched to the Type 99 sight. All that was needed was to re-machine the dovetails on the mounting plate attached to the rifle.

This late-war Type 99 sniping rifle, beginning to show signs of the deteriorating production standards, is fitted with the rarely encountered 4× Type 2 telescopic sight. Unlike the Type 97 and Type 99 sights, the Type 2 was capable of a limited amount of adjustment. (Rock Island Auction)



JAPANESE OPTICAL-SIGHT MANUFACTURERS

Japanese optical sights were made by several contractors, including manufacturing companies that have since become universally known.

Enomoto Kogaku Seiki Seisakusho (Enomoto Optical Manufacturing Co. Ltd), based at Kamata in Tokyo, applied a mark consisting of “EK” within a skeletal six-point star to Type 97 and Type 99 sights. The business was merged with Fuji Shashin Kōgaku Kiki KK (Fuji Photographic Optical Instruments Co. Ltd) in 1944.

Fuji Shashin Kogaku Kiki KK (Fuji Photographic Optical Instruments Co. Ltd) acquired Enomoto in March 1944, the manufactory being transferred to Odawara. Owing to destructive fire-bomb damage, Type 99 sights marked with an encircled representation of Mount Fuji beneath the ideograph *ki* were made only until the beginning of 1945.

Nihon Kogaku Kogyo KK (Nippon Optical Industry Co. Ltd), based in Yokohama’s Totsuka district, was originally owned by Mitsubishi and is now Nikon. A workforce increasing to more than 20,000 made a variety of optical equipment during World War II, including a substantial quantity of Type 97 sights. They bore an approximately triangular logo displaying “NIKKO” beneath a truncated oval cartouche containing the Japanese version of the name.

Nihon Taipuraitā KK (Nippon Typewriter Co. Ltd), based in Tokyo’s Shibuya district and now part of Canon, made Type 97, Type 99, and Type 2 sights for the Type 97 and Type 99 sniping rifles. The sights bore the company’s initials above “KOGAKU” in an angular cartouche.



Marks found on this Type 97 sight include the magnification and field of view (2.5×10°), the mark of the Omiya manufactory of Tokyo First Army Arsenal, the individual sight-number (not related to the rifle), and ネジ (*neji*), an acknowledgment in katakana characters that the screws conformed with Japanese engineering standards (“JES”). (Morphy Auctions)

Type 99 sights generally display 九九式短小銃 (*Kūkū-shiki tanshojū*, “Type 99 short [rifle]”) on the base, cast integrally with the tube although moved back compared with the Type 97 sight to expose the objective-lens portion. A rubber eyecup remained a standard fixture. A few Type 99 sniping rifles dating from the closing period of World War II were fitted with the so-called “Type 2” 4× telescopic sight.

The lens tube slid within a distinctive two-ring mount, cast in one piece, relying on three screws or bolts in the front ring to alter the point of impact when required. This overcame a problem for Japanese snipers using Type 97 and Type 99 sights, which were assembled and zeroed by the manufactory. This is widely believed to have limited maximum engagement range to no more than 300yd, a comparatively small disadvantage in jungle where fighting was often undertaken at close quarters.

Kokura-made Type 99 sniping rifles do not contain any so-called transitional parts, and are assumed to date from the period when tooling was being perfected in Nagoya Arsenal. Believed to have been contemporaneous with the Nagoya-made fifth- and sixth-series Type 99

Takatiho Seisakusho KK (Takatiho Manufacturing Co. Ltd), based in Tokyo's Shibuya district and now the Olympus Optical Co. Ltd, employed a banner trademark containing the company's name and primary location. This can be found on Type 97 and Type 99 sights.

Tokyo Dai-ichi Rikugun Zoheisho (Tokyo First Army Arsenal), using a five-point star containing concentric circles, is often said to have been a large-scale maker of Type 97 and Type 99 sights, but work was actually undertaken in a sub-plant in Omiya in Saitama prefecture.

Tokyo Kogata Kikai KK (Tokyo Optical Machinery Co. Ltd), based in Tokyo's Itabashi district, made Type 97 sights marked with a triangular trademark that combined "T" and "K."



Clearly bearing the imperial *mon*, a chrysanthemum bloom, and the *koku shiki* ("Type 99") designation, this rifle is paired with Type 99 sight no. 13467, with a 7° field of view, made by the the Nippon Typewriter Company ("NTC"). (Morphy Auctions)

Tokyo Shibaura Denki KK (Tokyo Shibaura Electric Co. Ltd), created in 1939 by amalgamating the Tokyo Electric Company and Shibaura Engineering Works, made Type 97, Type 99, and Type 2 sights. These are particularly commonly encountered on the Type 99 sniping rifle, estimates suggesting that almost half of those made came from this particular source. Markings are usually confined to a circular logo containing katakana characters reading "Matsuda" – said to honor the founder of the Tokyo Electric Company.

Tomioka Kogaku Kikai Seisakusho KK (Tomioka Optical Machinery Manufacturing Co. Ltd), based in Tokyo's Oomori district, made Type 97 sights encountered on both Type 97 and Type 99 sniping rifles. They bear a circular logo containing an arrow-like "T" inside an inverted triangle



A 4x7° Type 99 sight attached to a 7.7mm Type 99 short rifle. The sight body and the mount were cast in one piece. The marks above the radial locking-lever identify the accompanying rifle as "Type 99 Short," with locking instructions flanking the lever-pivot. (Morphy Auctions)

short rifles, the sniping rifles incorporated front bands held by two screws, and had a short cleaning rod held by a round-headed catch. Solid or slotted, the otherwise plain rear band lacked a monopod after about 1,500 rifles had been assembled, and the anti-aircraft "lead bars" on the back sight were also omitted.

During the war, manufacturers simplified construction to shorten machine-time and conserve vital raw materials. Low-grade steel was used wherever possible, the bolt cover and the sling swivels were omitted, and the use of chrome plating to protect the bolt face and the bore was stopped.

A noscap retained by two wood screws soon appeared on Nagoya-made Type 99 rifles, the bolt knob became cylindrical, the back sight became a fixed block, the forend groove disappeared, and the buttplate changed from metal to wood. Solid barrel bands and welded safety shrouds appeared toward the end of 1944. Even though some of the last batches to be made showed a noticeable reduction in quality, it is assumed that potential Type 99 sniping rifles, numbered in their own series, were still being tested for above-average accuracy.

BRITISH AND COMMONWEALTH SNIPING RIFLES

The SMLE

Adopted in 1907, the .303in Short Magazine Lee-Enfield (SMLE) Mk III rifle equipped British and Commonwealth forces during World War I, alongside the simplified .303in SMLE Mk III* with long-range sights and cutoff omitted. Both types fired the Mk VII rimmed cartridge adopted in 1910. After 1918, production concentrated on the Mk III, rifles remaining in service after May 1926 being re-designated No. 1 Mk III or No. 1 Mk III*.

The SMLE was 44.55in long, had a 25.2in barrel that retained the five-groove rifling, and weighed 8.15lb empty; the detachable box magazine held ten rounds; and the back sight was graduated to 2,000yd. A “cut off,” pivoted on the right side of the body beneath the feedway, could be pressed inward to isolate cartridges in the magazine. The goal was to allow single rounds to be fired, holding the magazine in reserve.

The back sight, a ramp-and-leaf pattern graduated from 200yd through 2,000yd, was used in conjunction with a front sight in the form of a rectangular block, slotted vertically, set on a ramp at the muzzle. An extreme-range sighting system, to facilitate volley firing, involved a dial-sight plate on the left side of the forend, which was graduated from 1,600yd to 2,800yd. A revolving dial-sight pointer fitted with a small bead sufficed as an auxiliary front sight. The auxiliary back sight was a pivoting arm alongside the safety catch, with a small “peep” at its tip.

Official records reveal that 9,790 Mk III and Mk III* sniping rifles, fitted with a variety of optical sights, had been produced prior to 1918, but almost all were scrapped in the 1920s.

Beaufort, Borneo, August 15, 1945: Private Leslie Tonks of C Company, 2/43rd Australian Infantry Battalion, is armed with an SMLE No. 1 Mk III fitted with a P18 sight. Searching for Japanese snipers, Tonks is supported by Private H. O’Fray acting as spotter and Private L. Waugh providing support. On April 22, 1943, Tonks had been recommended for the award of the Military Medal for his services as a sniper in the South West Pacific. (Australian War Memorial 114097)





The P14 Mk I* (T)

Adopted on April 11, 1918, the .303in P14 Mk I* (T) was the official British Army sniping rifle. The P14 Mk I was about 46.15in long, had a 26in barrel with Enfield-type five-groove rifling that turned to the left, and weighed 9.12lb empty. The internal box magazine held five rounds, loaded singly or from a charger, and the back-sight leaf was graduated to 1,650yd. The battle-sight aperture was set for 400yd, and long-range sights on the left side of the forend were intended for use at ranges up to 2,600yd.

Some rifles will be found with “PP” sights made by the Periscopic Prism Company Ltd (“PPCo”) of London, held in a monoblock attached to the left side of the action body by five screws staked in place. The block contained a longitudinal dovetail containing a broad leaf-spring ending in a checkered-head latch protruding rearward. A matching two-ring block attached to the telescopic sight-tube was simply slid into place when required. More common, however, was the 3× P18, a Hensoldt copy carried centrally above the bolt, suitable mounts being added on the left side of the breech and back-sight protector once the long-range sights had been removed.

About 2,000 P14 Mk I* (T) rifle/sight combinations are believed to have been assembled prior to the 1918 Armistice. Those that survived the purges of the 1920s were redesignated No. 3 Mk I* (T) in 1926. A few more were made in 1940 by BSA in Birmingham – at least 79 No. 3 Mk I* (T) for the Republic of Ireland, marked “F F” for *Fianna Fáil* – and 421 “No. 3 Mk I* (T) A” rifles were supplied by Alex Martin & Company of Glasgow. These often had a wooden cheekpiece and a 2.5× Aldis telescopic sight in a special one-piece low mount offset to the left of the bore. Most had Winchester-made actions, though an occasional Eddystone or Remington example has been reported.

A P14 Mk I* (T) sniping rifle of World War I, fitted with a 2.5× Aldis telescopic sight. This particular rifle's action was made by Winchester, the output of which was regarded as the best of the three manufacturers and often resulted in superior accuracy. (Rock Island Auction)

The No. 4 Mk I (T)

British Army shortages of sniping equipment early in World War II were solved by fitting Aldis sights to P14 rifles, and by converting about 1,400 No. 1 Mk VI and No. 4 Mk I trials rifles to No. 4 standards. Auxiliary cheekpieces were authorized in September 1940.

Approved on November 15, 1939, the .303in No. 4 Mk I was not issued until spring 1942. It was 44.45in long, had a 25.2in barrel with the standard five-groove Enfield rifling, and weighed 9.06lb empty. The leaf sight on top of the body was graduated to 2,000yd. No. 4 back sights ranged from the Mk I, graduated from 200yd through 1,300yd in 50yd increments, to the Mk II rocking “L,” set for 300yd and 600yd. Approved



A No. 4 Mk I (T) A sniping rifle with its wooden transit case, a vital accessory to protect the weapon and its accessories as they were transported to combat zones. Each case was customarily numbered to the individual weapon. (Rock Island Auction)

A No. 4 Mk I (T) sniping rifle with a 3× No. 32 Mk III telescopic sight, fitted with the lens protectors. Note the auxiliary wooden cheekpiece attached to the butt, which was intended to help the sniper correctly position his eye behind the sight. (Morphy Auctions)

in June 1941, the No. 4 Mk I* rifle had alterations to the body but lacked the “catch head, breech bolt.”

Approved on February 12, 1942, the perfected No. 4 Mk I (T) sniping rifle was issued with the 3× No. 32 Mk I telescopic sight that had originally been designed for the Bren Gun. Placed above the centerline of the bore, the sight was attached with the aid of a two-ring monoblock. Conversion was subcontracted almost exclusively to Holland & Holland of London, who completed 26,442 of about 28,500 sniping rifles; most of the others were trials rifles converted at RSAF Enfield to No. 4 Mk I (T) standard. Holland & Holland preferred to alter BSA products, though a few Stevens-Savage-made examples were used in 1942 to alleviate shortages.

The No. 1 Mk III* (HT)

Introduced late in 1944, the No. 1 Mk III* (HT) sniping rifle combined a standard Lee-Enfield action – usually an SMLE Mk III* originating in the Lithgow Small Arms Factory – with a heavyweight barrel and an





Australian-made P18 sight manufactured in Melbourne by the Australian Optical Company. Converted and tested in the Lithgow factory, the first batches of an order for 2,500 No. 1 Mk III* (HT) rifles were delivered in November 1944. Some were shipped immediately to the Pacific Theater, but little more than trials could be undertaken during Operation *Oboe* in Brunei Bay, Tarakan, and Balikpapan before hostilities drew to a close.

The No. 1 Mk III* (HT) rifles were fitted with two types of mount: high and low. The high type gave sufficient clearance to allow the open sights to be used when needed, facilitating snap-shooting in close combat, whereas the low type gave what was widely considered to be a more comfortable shooting position by placing the sight nearer the bore-axis. Production at Lithgow ceased early in 1946, even though the 2,500-rifle contract remained incomplete. Exactly how many of the rifles were accepted for service is still the subject of debate, Skennerton claiming (2008: 37) 1,250 high-mount and 362 low-mount rifles, while Wahlert & Linwood record (2014: 133) the totals as 1,131 and 481 respectively.

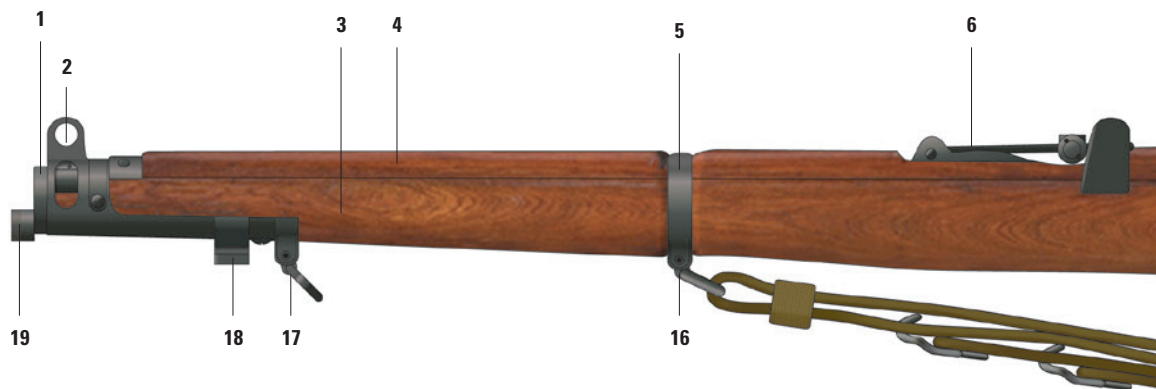
The Australian No. 1 Mk III* (HT) sniping rifle was basically a heavy-barrel variant of the standard SMLE, in this case with a P18 sight carried in two-piece ring mounts. This particular rifle makes use of the high type of mounts, which raised the sight approximately 0.5in higher than the low type. (Morphy Auctions)

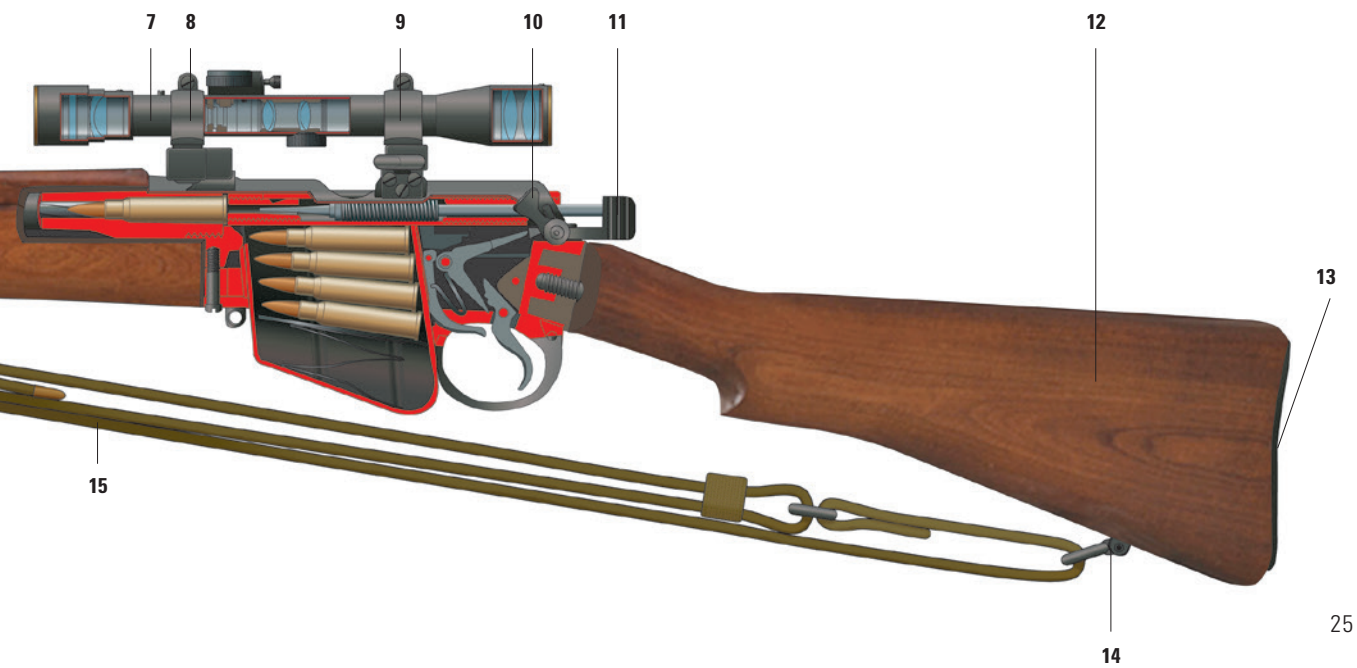
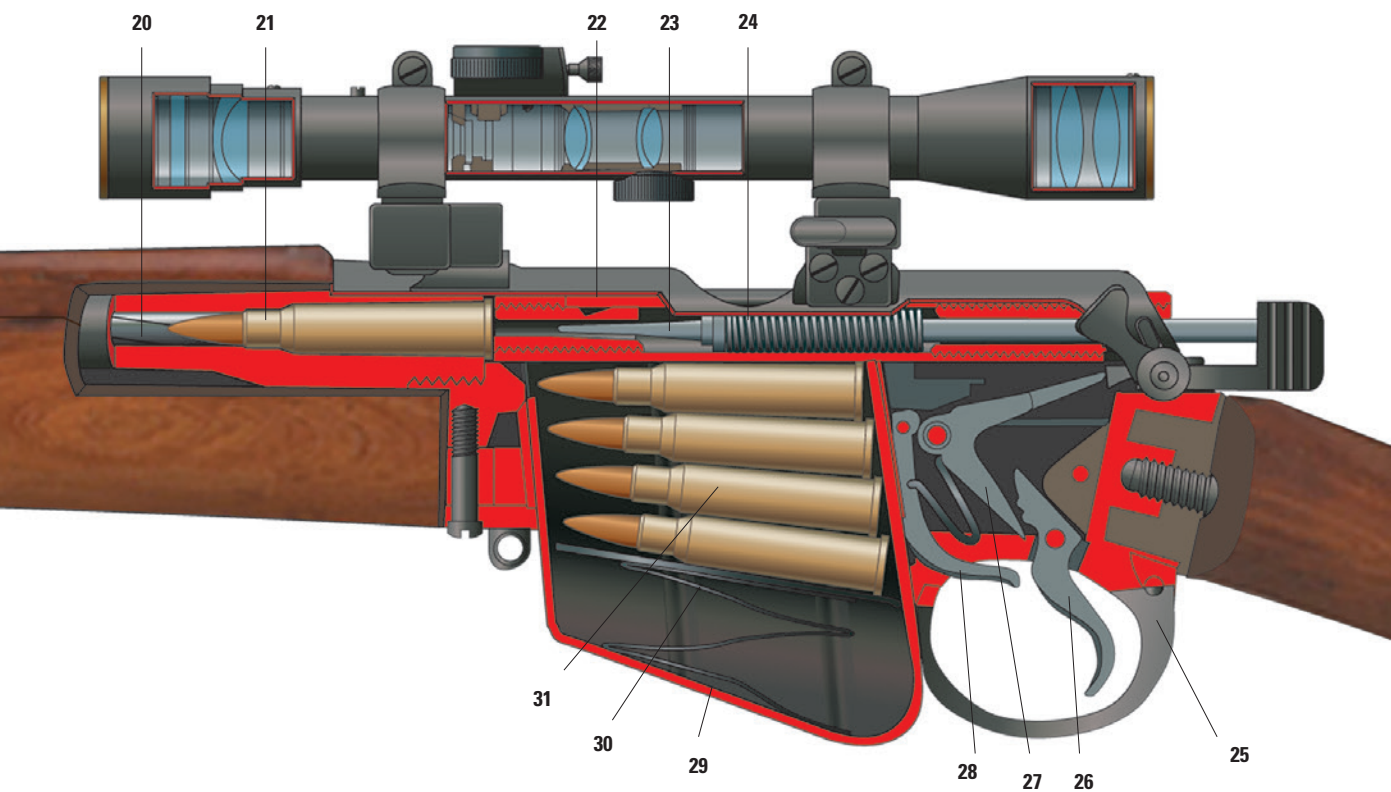


THE HEAVY-BARREL SMLE REVEALED

.303 SMLE No. 1 Mk III* (HT) rifle with P1918 sight

- | | | |
|-------------------------------|---------------------------------|----------------------------------|
| 1. Nosecap | 12. Butt | 23. Firing pin |
| 2. Front sight | 13. Buttplate | 24. Firing-pin spring |
| 3. Forend | 14. Sling swivel, rear | 25. Trigger guard |
| 4. Handguard | 15. Sling | 26. Trigger |
| 5. Barrel band | 16. Sling swivel on barrel band | 27. Sear |
| 6. Back sight | 17. Sling swivel on nosecap | 28. Magazine catch |
| 7. P1918 sight body | 18. Bayonet lug | 29. Magazine floorplate |
| 8. Optical-sight mount, front | 19. Bayonet boss | 30. Magazine spring and elevator |
| 9. Optical-sight mount, rear | 20. Rifling | 31. Cartridges in magazine |
| 10. Safety catch | 21. Chambered cartridge | |
| 11. Cocking piece | 22. Bolt | |





BRITISH AND COMMONWEALTH SIGHTS

Little more than copies of a German sight made by Hensoldt of Wetzlar and captured early in World War I on the Western Front, about 2,000 **P18 sights** were made by the Periscopic Prism Company Ltd of London ("PPCo"), a firm appropriated by the Ministry of Munitions shortly before World War I ended.

Numbered to individual rifles, with range drums graduated "1" through "10" (100–1,000yd), the P18 sight was accompanied by a two-piece double-claw-type centerline mount, lens caps connected with a leather strap, a canvas carry-case with a shoulder strap, and a 3.5in rubber eyepiece with a beaded edge. Many of the sights survived to serve in World War II, including a copy made in Australia to enable No. 3 Mk I* (T) rifles to be issued in surprisingly large numbers.

Best known as a maker of telescopic sights issued to British Army snipers during World War I, with the SMLE and P14 rifles, **Aldis sights** were produced by Aldis Brothers, founded in Sparkhill, Birmingham, by Hugh L. Aldis and Arthur C.W. Aldis.

Hugh Aldis was granted several patents protecting telescopes and optical equipment. There were four patterns of 2.5× Aldis sight, customarily used on the SMLE in Purdey or Holland & Holland mounts that were offset considerably to the left of the bore-line to allow the magazine to be charger-loaded or replenished with single rounds through the open action. Pattern No. 1 was replaced by Pattern No. 2, with an improved focusing system and a slightly enlarged tube, and then by Pattern No. 3 with an improved elevating mechanism with the adjuster facing toward the firer instead of pointing to the muzzle. The perfected Pattern No. 4 had the eyepiece integral with the tube, instead of being a separate part, and a prism was added to the objective-lens assembly to facilitate lateral adjustments.

It has been claimed that 3,196 SMLE rifles fitted with Aldis sights were set up during World War I by Holland & Holland, Purdey, and others. Some sights survived to be reissued in the early days of World War II, finding their way to the Pacific



An oblique view of a No. 4 Mk 1 (T), showing a No. 32 sight attached with the aid of a two-ring monoblock – cast as a single piece by makers such as John Dalglish & Sons of Glasgow (marked "JD&S" or with the wartime area code "N92"). The mount was held to pads brazed to the action body with the assistance of two locating pegs and four screws, while the sight itself was held in the mount with the help of two large thumb-screws. This prevented reloading with the aid of chargers, but the box magazine could simply be replaced when needed. (Arundel Militaria)



The British No. 32 sight, adopted in 1942, was attached to the No. 4 Mk I (T) by a sturdy mount cast integrally with the sight-tube rings and two finger-screws. Marks visible on the tube show this to be a 1945-vintage Mk II sight, and the mount is numbered to the individual rifle; in this case BSA-made M30140. (Author's archives)

Theater with British, Indian, and Australian marksmen. Like many of the sights of the era, however, Aldis sights offered low magnification – usually only 2.5× – and poor light-gathering capabilities, as the diameter of the objective lens was only 19–20mm (0.75–0.79in).

The introduction of the **No. 32 sight** was announced alongside the No. 4 Mk I (T) Lee-Enfield on February 12, 1942. The 3×19 sight had been developed for the Bren Gun but was never used in its intended role. Attached to the No. 4 Mk I* (T) sniping rifle with the aid of a two-ring monoblock, the No. 32 Mk I weighed 2lb 3oz, had a 19mm (0.75in) objective lens, a 9-degree field of view, and a range drum graduated from 100yd through 1,000yd. It had a sliding sheet-metal sunshade at the rear and elevation and deflection drums that could only be adjusted with the help of a screwdriver, a small coin, or the tip of a knife. Elevation drums are graduated "1" to "10" (10–1,000yd), while the deflection drums bear "16," "12," "8," and "4" either side of "0." Adopted on April 23, 1943, the Mk II sight had internal improvements to prevent backlash in the adjusting drums resulting from firing, and finger-rotatable 1 MOA adjustments clickers; sunshades were found on the earliest examples, but were then abandoned. The

perfected Mk III sight of October 7, 1944, incorporated improvements in the lens system, and the adjusting drums, notably offset in the earlier patterns, aligned with each other. The precise characteristics can be somewhat blurred by mainly postwar upgrades, however.

No. 32 sights can be identified by markings that include the designation, maker's mark, and an optical-stores parts number: "O.S. 466A" on the Mk I, "O.S. 1650A" on the Mk II, and "O.S. 2039A" on the Mk III. Makers included Cooke, Troughton & Simms Ltd of York (usually marked with a "CTS" monogram); the Houghton–Butcher Manufacturing Co. Ltd of London ("H.B.M.Co."); A. Kershaw & Sons Ltd of Leeds ("A.K. & S."); Taylor, Hobson & Co. Ltd of Leicester ("T.H. & CO."); Vickers Instruments Ltd of York ("V.I.L."); and W. Watson & Sons of London ("W."). A blue "B" signified the use of bloomed lenses, while "W" in red identified waterproofing.

Accessories included a leather double-lens cap with connecting strap, and the "Case, Telescope, Steel, No. 8" with a carrying strap. Rifles and their sights were issued in a wooden transit case containing a canvas rifle-case, the steel telescope-case, a sling, and a cleaning kit.

US SNIPING RIFLES

The M1903A4 Springfield

In 1917, the US armed forces entered World War I armed with the .30-06 M1903 Springfield rifle, with a muzzle velocity of 2,700ft/sec, and sight leaves that could be set to a maximum range of 2,850yd. The magazine, like that of the 7mm M1893 Spanish Mauser rifle, was contained entirely within the stock. It was loaded through the top of the open action either from a five-round charger ("stripper clip" in US military parlance) or with single rounds, while the floorplate could be unlatched and removed if required. A full-length wooden handguard protected the barrel. The original stock had a grasping groove in the fore-end behind the barrel band, and a straight wrist.

Introduced in 1929, few examples of the M1903A1 rifle with pistol-grip stock were made, and straight-wrist stocks were still being used in 1939. The M1903 (Modified) rifle, or M1903M, was a simplified variant introduced in March 1942 to accelerate production, but was superseded in March 1943 by the M1903A3 rifle, with straight-wrist stock and an aperture sight in an adjustable cradle on top of the receiver bridge behind the charger guides. The M1903A3 production contracts were canceled in February 1944 once supplies of the M1 Garand rifle and M1 Carbine had been assured, but development of the M1903A3 undoubtedly helped to accelerate the introduction of the M1903A4 sniping rifle.

Two M1903 Springfield rifles dating prior to 1918, the weapon above fitted with a 5× Winchester A5 telescopic sight and the other with a 5.2× M1913 Warner & Swasey prismatic-pattern telescopic sight. Though regarded as obsolescent, a few such combinations survived to be pressed into service in the period immediately after the attack on Pearl Harbor on December 7, 1941. Though M1908 and improved M1913 Warner & Swasey sights were made in quantity, and served with Ross and Springfield rifles during World War I, they had very little lasting effect on optical-sight design. The US authorities finally realized that even the M1913 prismatic sight was inferior to conventional straight-tube patterns, and so a Frankford Arsenal sight – simply adapted from the Winchester and Goerz designs of the day – was adopted as the "M1918" for issue with a modified M1918 (Enfield) sniping rifle. World War II ended before Winchester could deliver any sights, however, and the project was abandoned. The unsatisfactory M1908 and M1913 Warner & Swasey sights were issued to the American Expeditionary Forces in 1917, but saw little use. (Morphy Auctions)





Even before the United States became involved in war with Japan, General Headquarters, US Army, had requested an optically sighted sniping rifle based on the M1 Garand (see page 33). Though development work had soon begun, the onset of hostilities forced the authorities to prioritize the introduction of a Springfield-type bolt-action sniping rifle while the Garand derivative was perfected. Trials undertaken by the Infantry and Ordnance boards ended with a recommendation in December 1942 that the 2.5× Weaver Model 330C telescopic sight being offered commercially by the W.R. Weaver Company of El Paso, Texas, and a modified Redfield “Junior” mount

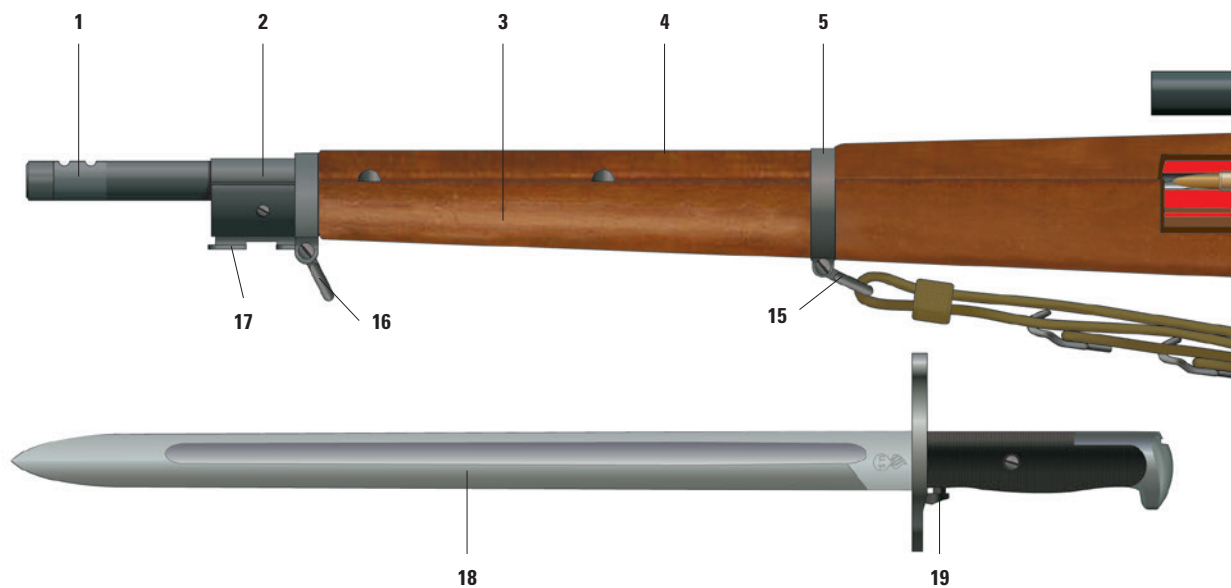
A typical M1903A4 sniping rifle, fitted with a 2.5× Weaver 330C sight with the leather lens-protectors in place. Note the omission of open sights, which many users considered to be a mistake while trying to acquire targets rapidly. The M1903A4 was little more than the M1903A3 rifle modified for sniping. The shank of the bolt handle became concave, to clear a low-mounted telescope body, and a recess was formed in the side of the stock to accept the bolt handle. Standard M1903A3 barrels were used, initially using two-groove cut rifling but subsequently often with four draw-formed grooves, and the front sight was omitted though the attachment grooves remained. The rifles were fitted with pistol-grip stocks supplied by Springfield (stock-recess marked “S”) or sometimes semi-pistol grip “scant” stocks provided by Keystone (“K”). This particular rifle has a scant “Type C” stock, with barely a suggestion of a pistol grip. (Morphy Auctions)

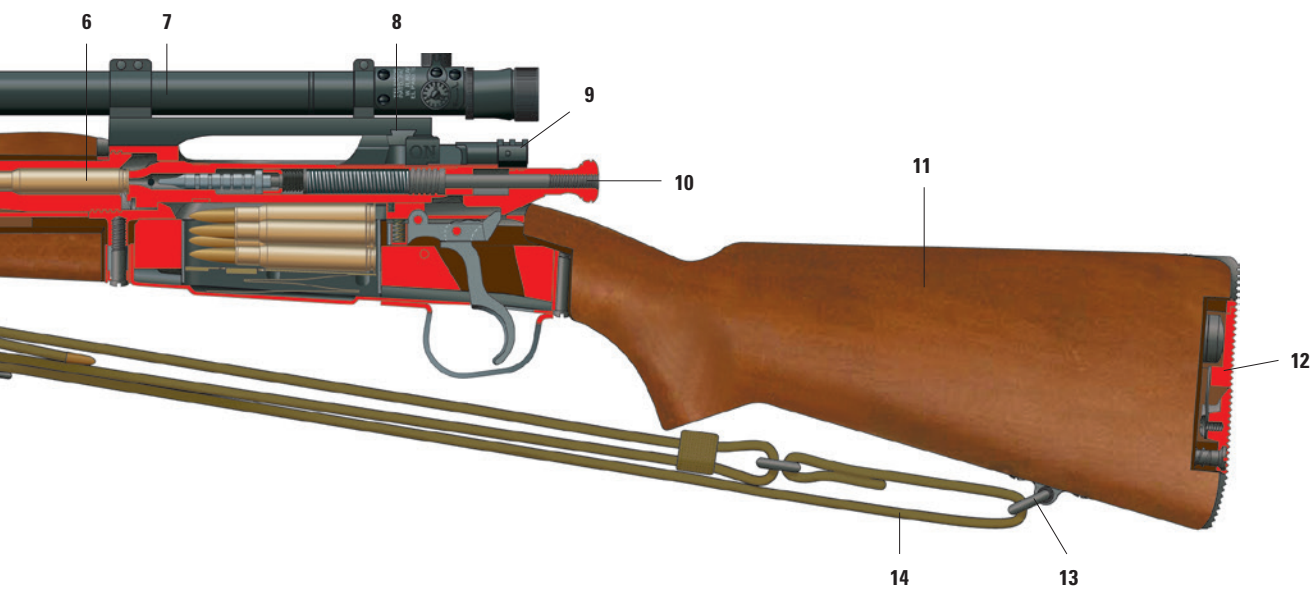
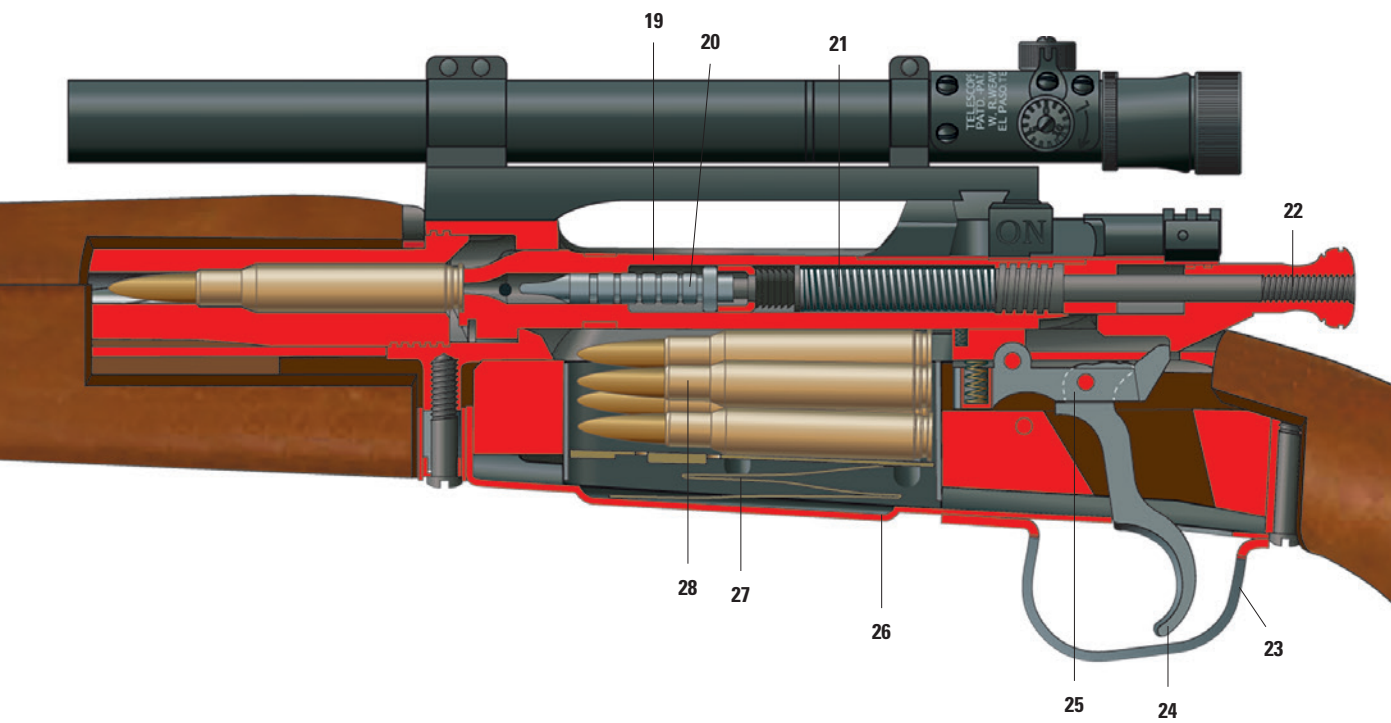


THE M1903A4 UNVEILED

.30-06 M1903A4 rifle with Weaver 330C sight

- | | | |
|----------------------------------|-------------------------------------|---|
| 1. Barrel | 11. Butt | 21. Firing-pin spring |
| 2. Nosecap and nose band | 12. Buttplate and trap | 22. Cocking-piece spring |
| 3. Forend | 13. Sling swivel, rear | 23. Trigger guard |
| 4. Handguard | 14. Sling | 24. Trigger |
| 5. Barrel band | 15. Sling swivel, front band | 25. Sear |
| 6. Chambered cartridge | 16. Swivel, nosecap-band | 26. Magazine floorplate |
| 7. Weaver 330C sight body | 17. Bayonet lug | 27. Magazine spring and elevator |
| 8. Optical-sight mount | 18. M1942 sword-bayonet | 28. Cartridges in magazine |
| 9. Safety catch | 19. Bayonet catch | |
| 10. Cocking piece | 20. Firing pin | |





be adopted. On January 14, 1943, the Chief of Ordnance approved the “Rifle, Caliber .30, M1903A4, Snipers,” which was duly standardized in February. On January 18, 1943, 20,000 receivers – numbered 3407088–3427087 – were diverted from M1903A3 production for completion to “A4” standards and an additional order for 8,365 was placed in June.

M1903A4 sniping rifles were bore-sighted for 100yd, shims being used if necessary to ensure proper alignment. Rifles that failed test-firing reverted to M1903A3 pattern and were returned to regular service. The last batches of M1903A4 sniping rifles were delivered in June 1944, owing to the approval of the M1C Garand sniping rifle with a 2.5× Lyman Alaskan telescopic sight in a Griffin & Howe mount. The June 1943 contract was still apparently incomplete, however: somewhere between 28,365 and 29,964 rifles – estimates vary – were made in the Remington Arms Company factory in Ilion, New York, but the last of them were most probably assembled after World War II had ended.

The Winchester Model 70

Derived from the .30-06 Winchester Model 54 sporting rifle by a team led by Edwin S. Pugsley, with Leroy Crockett and Albert F. Laudensack prominent, the Model 70 of 1933 retained the operating system of its predecessor. It had a cone breech, a partially shrouded bolt head, and an improved bedding system with the front trigger-guard bolt running up into the underside of the receiver instead of the recoil lug. The bolt handle was swept down and back to clear an optical sight, and the safety catch on the cocking-piece shroud was changed to work laterally; it could be set to fire, to retract the firing pin (yet allow the bolt to open), or to lock the bolt in the bolt way. The bolt stop became a separate component, independent of the sear. A hinged magazine floorplate was fitted and the trigger guard became a machined steel forging. Approved on December 29, 1934, the first M70 rifles were delivered into store in the fall of 1936. Known as the “Sporting Rifle,” or later also as the “Standard Pattern,” the M70 duly appeared in the 1937 Winchester Repeating Arms Company catalog.

Some of the earliest examples of the M70 made for .270 Winchester and .30-06 cartridges had charger guides milled in the front edge of the receiver bridge. The top of the receiver ring and bridge had non-reflective hatching, while the receiver ring was drilled and tapped for an optical-sight mount. The half-stock was a refinement of that of the M54, with less drop at the heel and a broader forend. Checkering was also improved. Barrels were customarily 20in or 24in long. The safety catch was altered in 1938 to operate on the right side of the bolt shroud instead of across it, and a safety catch thumb-piece was added soon afterward.

Production of the M70 stopped at the end of 1941 owing to the onset of war. On May 29, 1942, however, Winchester sent 373 rifles for evaluation by the US Marine Corps; numbered in the 41000–45000 range, some had apparently been retrieved from factory and dealers’ stocks. Trials undertaken in August 1942 were uninspiring, the report suggesting that the M70 was too flimsy and lacked parts-interchangeability



with existing service weapons – and it lacked sling swivels. The conclusion was that the 1,047 M1903 ‘Sniper Equipment’ rifles on hand were not only more reliable but also more accurate.

Yet most individual US Marine Corps marksmen, many of whom were to become snipers, disagreed strongly, regarding the Winchester as lighter, better to handle, and more accurate than the M1903. The most vocal opponent was Major George O. Van Orden, who, after suggesting changes including a heavier barrel and a specially bedded “accurized” stock, was able to get the M70 approved for issue as a sniping rifle when fitted with an 8× Unertl sight.

Two views of the Winchester M70, recommended for standardization by the US Marine Corps though only small numbers had reached the front lines when World War II ended. This rifle has a commercial target-type Unertl sight, the coil spring visible behind the front ring-mount serving to absorb recoil. The sight had to be pulled back into position for each shot, which was regarded officially as a drawback even though US Marine Corps snipers sometimes improvised “auto-return” in the field using rubber bands. (Morphy Auctions)

The M1C Garand

Chambered for the .30-06 rimless cartridge and locked by rotating lugs on the bolt head into the receiver, the M1 Garand gas-operated semiautomatic rifle was standardized in 1936 and delivered the following year. It was 43.5in long, with a 24in four-groove barrel, and weighed 9.5lb empty. The one-piece stock extended almost to the muzzle, allowing only the last few inches of the gas tube and barrel to protrude. A handguard ran forward from the breech; one swivel lay on the barrel band, another beneath the butt. The internal box magazine held an eight-round cartridge-clip, the back sight was graduated to 2,000yd, and an M1 sword-bayonet could be attached beneath the muzzle.

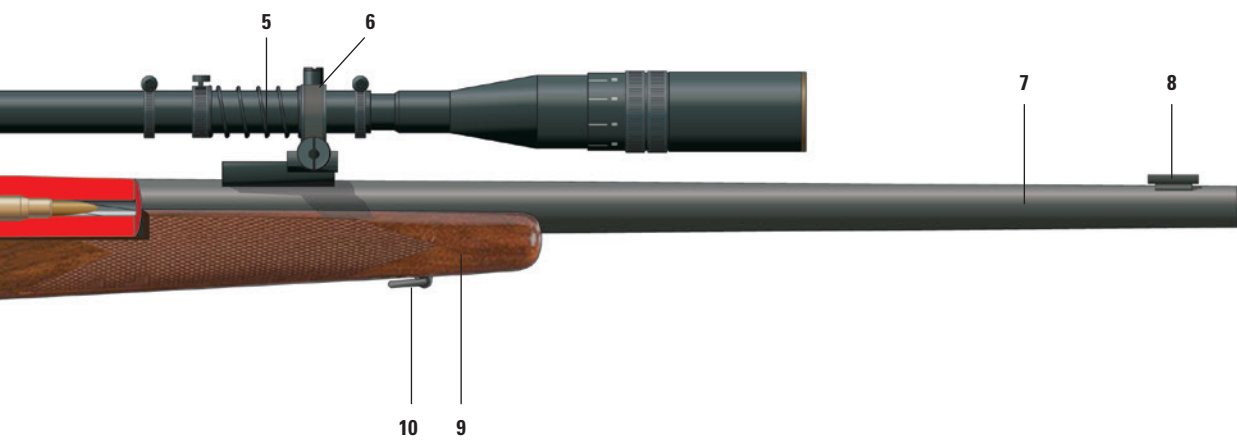
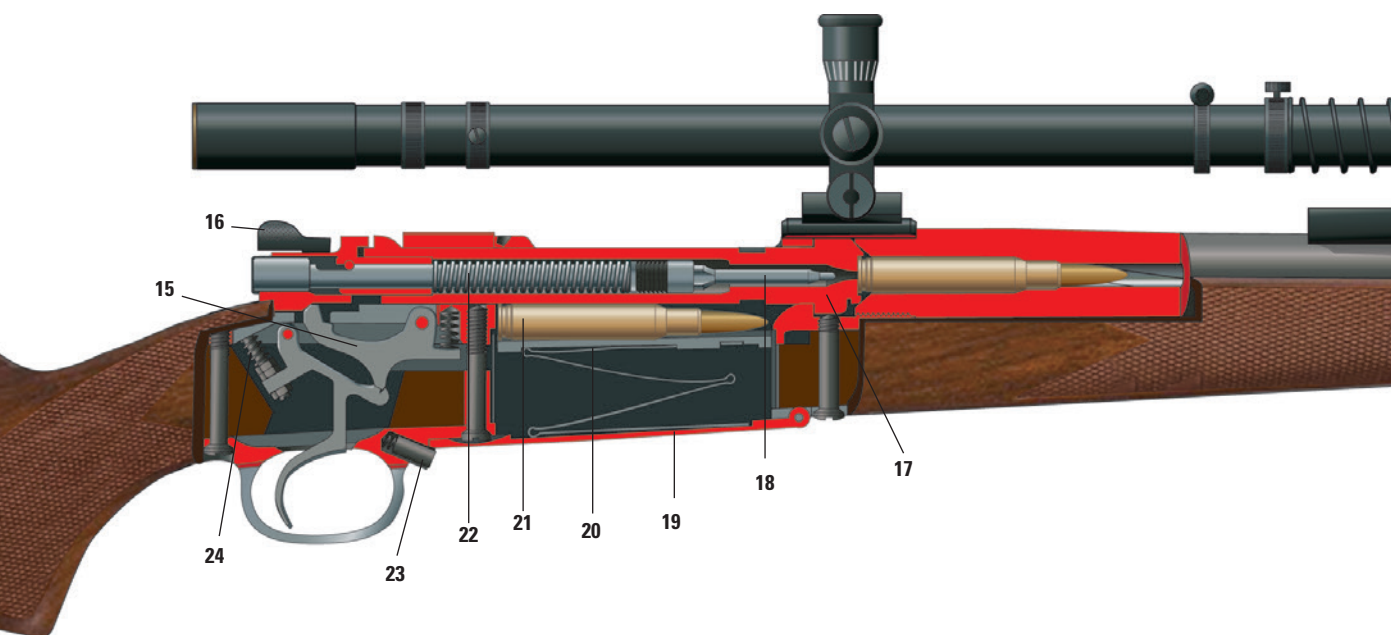
Soon after the Japanese attack on Pearl Harbor, the US Army authorities asked for a sniping rifle derivative of the M1 Garand. Development was not to be entirely straightforward, however, as the optical sight had to be offset to allow cartridge-clips to be inserted in the magazine and ejected effectually when the last shot had been fired. Among the solutions investigated by the Ordnance Department was a prismatic telescopic sight, inspired by the sights found on the Japanese 6.5mm Type 96 and 7.7mm Type 99 light machine guns. The sight’s body was offset considerably to the left, to give sufficient clearance above the breech, while the eyepiece was centered over the M1 back sight.

THE WINCHESTER MODEL 70 REVEALED

.30-06 Winchester Model 70 with Unertl sight

- | | | |
|--|--------------------------|---------------------------------------|
| 1. Buttplate | 9. Forend | 17. Bolt-head |
| 2. Butt | 10. Front sling swivel | 18. Firing pin |
| 3. Unertl telescopic sight | 11. Cartridge in chamber | 19. Magazine floorplate |
| 4. Rear sight mount with control knobs | 12. Trigger guard | 20. Magazine spring and elevator |
| 5. Sight return spring | 13. Trigger | 21. Cartridges in magazine |
| 6. Front sight mount | 14. Rear sling swivel | 22. Firing-pin spring |
| 7. Barrel | 15. Sear | 23. Magazine floorplate release catch |
| 8. Sight base, blade removed | 16. Safety catch | 24. Trigger spring |







This M1C Garand sniping rifle – dating from March 1945 – is fitted with the 2.2× M82 sight and the M2 flash hider, but lacks the cheekpiece needed to support the firer's head so that his eye lay behind the ocular lens. The internal box magazine holds an eight-round spring-steel cartridge-clip; the 2,000yd tangent back sight lies on the body behind the feedway, and an M1 sword-bayonet can be attached beneath the muzzle when needed. (Morphy Auctions)

Two prototype Garands with offset sights were tested extensively. The M1E7 had a Griffin & Howe bracket-mount attached to the action body by two locating pegs and three screws. The design was adopted on July 27, 1944, as the “U.S. Rifle, Caliber .30, M1C, Snipers.” Often fitted with the M2 flash hider, the M1C weighed 11.2–11.5lb with its sights. The competing M1E8 had a mount attached to the rear of the barrel to receive a base, designed by John C. Garand, with a knurled knob which allowed the sight to be removed rapidly. The M1E8 duly became the “U.S. Rifle, Caliber .30, M1D, Snipers.”

Both rifles were fitted with the 2.2× M73 telescopic sight, standardized in October 1944, which was a military version of the Lyman Alaskan all-weather design. The M73, with a crosshair reticle, subsequently gained a sliding rain/sunshade at the objective end, becoming the M81 (standardized on October 2, 1944) and then upgraded to M82 when a tapered-post reticle was accepted. Neither M81 nor M82 sights reached the Pacific before World War II ended, however. Service showed their shock resistance to be poor and so, as water penetration and resulting fungus contamination degraded optical performance, they were superseded by the M84, standardized on April 4, 1945, but not issued until hostilities had ended.

Somewhat oddly, particularly as the M1C and M1D had both been approved, the Ordnance Department elected to concentrate production on the M1C and no M1D was ever used in the Pacific Theater during World War II. The initial contract called for 21,158 M1C sniping rifles, and production soon began using batches of action bodies numbered in the 3100000–3800000 range. Unfortunately, progress was almost immediately hindered by shortages of optical sights and unexpected accuracy problems. For example, the differing metallurgy of the action bodies and the mounting bracket, which were initially heat-treated as an assembly, led to warping during heat-treatment and a subsequent deterioration of accuracy. The process was changed so that the parts were processed separately, but this was just one of several problems that restricted the production of the M1C Garand prior to VJ Day to just 7,971.

The Johnson

Although this innovative semiautomatic rifle developed by US Marine Corps reservist Melvin M. Johnson was tested by the US Army Infantry School in 1938, in 1940 the authorities ordered interest in the Johnson to cease in case remedial work on the M1 Garand rifle was adversely affected. Tests showed that the Garand was compact and durable, but the

US OPTICAL SIGHTS

Developed by John (formerly Johann) Unertl prior to World War II to facilitate target shooting, the 8× **Unertl** telescopic sight was used on some of the M1903 Springfield sniping rifles issued to US Marines in the Pacific. Long and delicate, the Unertl design was somewhat fragile, though its optical system was better than the Weaver sights standardized by the US Army. The worst feature was the need to return the sight, moved by recoil forces, to its starting position after each shot, supposedly helped by a coil spring encircling the tube.

Made by the W.R. Weaver Company in El Paso, Texas, the commercially available 2.5× 330C telescopic sight was adopted by the US authorities for use as the **M73B1**, in conjunction with a slightly modified Redfield “Junior” one-piece mount, with what became the M1903A4 Springfield sniping rifle. Most of the sights were made by Weaver, but shortages led to Frankford Arsenal in Pennsylvania making comparatively small quantities that are marked appropriately. Designations read “MODEL 330” or “TELESCOPE M73B1.”

Rated at 2.5×, though magnification is often said to have been nearer 2.2×, the M73B1 sight was about 10.75in long and

had a 0.75in-diameter tube. Field of view was 35ft at 100yd, and “universal focus” was provided. The standard reticle was a crosshair, though a few 330C/M73B1 sights shared the tapered-post and crosshair featured on the M8 sight. Elevation and traverse were controlled by MOA-click adjustable drums protruding from a plate held to the tube, ahead of the eyepiece, by two screws. Old-style controls were turret-like, requiring a bladed or edged tool or similar implement to make adjustments, but these were soon replaced with finger-adjustable coined drums.

The sights were polished and blued, with a serial number marked on the tube with an electric pencil. Accessories included lens covers joined by a strap, and the canvas M65 carrying case.

The **M8** was an improved form of the 330 sight, its reticle consisting of a tapered half-height vertical post and a single horizontal hair. A few 330 sights have, however, been found with a similar reticle in place of the standard crosshairs. These are surmised to have been made alongside the M8, and to have shared components.



The Weaver 330C sight on the M1903A4 was attached to a slightly modified version of the commercial Redfield “Junior” mount by locating it at the front and then swinging the sight body sideways until it could be locked to the lateral dovetail on top of the body-bridge. The sight shown is the later variant, with coined-edge adjuster drums that could be adjusted without some kind of bladed tool. Note also the “RA” mark of the Remington Arms Company and “FJA” of Colonel Frank J. Atwood, the principal US Army inspector, on the left side of the stock above the trigger guard. (Morphy Auctions)



Full-length views of a .30-06 M1941 Johnson rifle, used in some numbers by the US Marine Corps. Note the slender barrel within a ventilated sheet-steel casing, and the position of the drum magazine. (Rock Island Auction)

Johnson's magazine could be reloaded even with the bolt closed. In addition, the feed lips were machined in the receiver, reducing jamming, and the barrel was readily detachable. Owing to problems with BAR-type box magazines fitted to the Johnson tested in 1940, which were said to have been damaged deliberately to ensure malfunctions, Johnson introduced a rotary-spool magazine that could be loaded either from two five-cartridge Springfield chargers or with individual rounds. This alone made the Johnson more combatworthy than the M1 Garand, which used an idiosyncratic "en bloc" cartridge-clip that could not be reloaded without removing it from the weapon.



Markings, including the "crowned W" cypher of Queen Wilhelmina of the Netherlands, found on the breech of a Johnson rifle taken from the KNIL. (Morphy Auctions)



Though spurned by the US government, Johnson was able to sell 10,200 rifles and 515 light machine guns to the Netherlands government-in-exile on August 19, 1940. An order for another 10,200 rifles soon followed. Destined for service with the Koninklijk Nederlands Indisch Leger (KNIL: Royal Netherlands East Indies Army), the .30-06 “M1941” rifle – made in what had been a textile-machinery manufactory in Cranston, Rhode Island, by Johnson Automatics Manufacturing Company – had a two-piece stock separated by the magazine housing, which had a noticeably shallow wrist as the return spring lay in a tube in the butt. A pierced sheet-steel jacket surrounded the barrel, which moved back on firing to unlock the bolt. The rifle was 45.5in long, had a 22in barrel with four-groove rifling, and weighed 9.5lb empty. Ten rounds could be loaded



New Guinea, July 1945: a KNIL officer demonstrates the M1941 Johnson rifle to trainees armed with Johnsons except the three men (left foreground) who have Thompson submachine guns. One man even appears to be carrying a Japanese sword. (Dutch National Archives/Wikimedia/CC0)



into the detachable rotary drum magazine from, if available, two standard M1903-type chargers. The spring-leaf and ramp back sight was graduated to 1,000yd, and a special lightweight all-metal knife-bayonet could be attached to the muzzle. The bayonet would have been practically useless in combat, but was needed to comply with the original specification.

Work on the KNIL contract stopped when the Netherlands East Indies surrendered to the Japanese in 1942. How many rifles had been delivered by that time is disputed, estimates now ranging from 1,999 to about 3,000. As far as the US Marine Corps was concerned, this proved to be beneficial as Dutch-pattern Johnson rifles, which fortuitously chambered the .30-06 cartridge, could be acquired from store at a time when M1 Garands were in short supply.

The M1 and M2 carbines

Approved in October 1941, the M1 Carbine chambered the .30 M1 Carbine rimless cartridge and was locked by lugs on the bolt engaging the receiver. The gas-operated action relied on gas bled from the bore striking a tappet back merely about a half-inch to transfer energy to the spring-loaded operating slide that unlocked the bolt.

Individual variants included the M1A1, with a pistol grip and a skeletal collapsible butt with a reinforcing plate, and the M1A2 standardized in January 1943 to overcome the limitations of the rocking-“L” back sight. Unfortunately, the new T21 adjustable back sight required modifications to the body and so adoption was rescinded in November 1943 to prevent disrupting output at a critical time. Subsequently, the T21 sight was simply adapted to fit the standard M1 Garand.

Standardized on October 25, 1944, the selective-fire .30 M2 Carbine introduced a 30-round box magazine – subsequently widely issued with standard M1 Carbines – and had a selector on the left rear of the receiver to disengage the sear when firing automatically. M2 Carbines were made exclusively by Winchester and the Inland Manufacturing Company of



A US Army soldier tests a prototype .30 T3 Carbine fitted with an early infrared Sniperscope. The T3 had a special stock with a flat-bottomed forend to which a pistol-grip-like bracket attached with three bolts. The bracket bore a trigger-like switch for the infrared light attached to the bracket by a turn-catch. A small rectangular plate on the left side of the stock above the trigger bore a thumb-screw (subsequently changed to a slider) holding the clasp on the power cable in place. Here, the cable leading to the power pack can be seen around the firer's chest. (US National Archives)

Dayton, Ohio, but the T17 field-conversion kit allowed M1 Carbines to be altered to M2 standards when needed.

An M1E7 Carbine fitted with an M73B1 sight, in a commercially available Redfield “Junior” one-piece mount, was tested in November 1943 after Inland responded to a request from Headquarters Army Ground Forces for something that would provide snipers with a light and handy means of delivering rapid fire accurately. Though engagement range was restricted by the relatively poor ballistics of the .30 M1 cartridge, advantages could clearly be discerned for short-range jungle combat. By the time trials were completed, however, the M73B1 sight was shown to be weak even though the mount had proved effectual. Issue to snipers was clearly out of the question, but the suggestion that an infrared Sniperscope be substituted for the M73B1 was made.

On September 24, 1943, representatives of the US Army’s Chief of Staff, the Ordnance Board, and the Engineer Board convened to assess progress with infrared devices being investigated by the Corps of Engineers. Accompanied by a 6× electronic observation telescope known as the “Snooperscope,” the Sniperscope was intended to deal with Japanese forces infiltrating US Army-controlled areas unseen. The Army Jungle Warfare Committee wanted work expedited, so the Small Arms Division of the Office of the Chief of Ordnance was instructed on September 27, 1943, to mount an experimental Sniperscope on the M1 Carbine. The prototype performed well enough for the Engineer Board to request – albeit optimistically – that 750 M1 Carbine/Sniperscope combinations be completed by January 1944. On February 17, therefore, the Ordnance Technical Committee recommended approval of the “Carbine, Caliber.30, Model T3,” which was duly confirmed on March 16, 1944, after trials had been undertaken at Fort Benning, Georgia.

Inland is believed to have begun M1 Carbine production in March 1944, and received a second order later the same year. A separate order for 5,160 carbines was placed with Winchester following testing of the company’s prototypes in April 1945, but the first of 1,098 carbines were not delivered to the Ordnance Department until August 17, 1945, too late to serve in World War II. The Winchester variant differed from the Inland variant in having grooves for the optical-sight mount milled longitudinally on top of the action body.



USE

Snipers in combat

In December 1941, only the Japanese – thanks largely to encountering snipers in the ongoing war with China – had a purpose-built sniping rifle in the form of the Type 97. The Japanese had experienced combat in Manchuria in the 1930s and during the Second Sino-Japanese War, when Chinese snipers trained by German veterans of World War I put Mauser-type rifles to good use. By 1941, each IJA infantry platoon usually had a single sniper, selected for his proven marksmanship skills, capable of living frugally – carrying rice and water to ensure self-sufficiency – and psychologically suited to staying hidden for long periods. Becoming a sniper was generally seen as an honor, men seeking at all costs to avoid the shame of returning to infantry roles. Shortages of suitable weaponry meant that the Japanese sniper was often equipped with little more than a standard infantry rifle with open sights as he sought to slow down Allied advances or cover the withdrawal of his own colleagues.

Australian soldiers on patrol in Papua New Guinea, May 1944. By this time, both sides had learned through bitter experience just how disruptive even a single enemy sniper could be during patrolling activity. (Mondadori via Getty Images)





A Japanese sniper armed with a Mauser short rifle, most probably taken from the Chinese. The rifle is fitted with a German-type optical sight offset to the left side of the weapon in a two-ring mount. Like virtually all participants in World War II, the Japanese acquired large numbers of weapons from their adversaries. Among the rifles were Mausers of many types taken from the Chinese, some made in China but others emanating from Belgium, Czechoslovakia, and Germany. Mosin-Nagant rifles were taken from Soviet forces in Manchuria, and also from the Chinese. Capturing the Netherlands East Indies provided Dutch-pattern M1895 Mannlicher rifles and M1941 Johnson autoloaders, and Lee-Enfields of various types were taken in quantity from British and Empire forces in Singapore, Malaya, Burma, and India. There is no evidence, however, to show that issue of sniping rifles, undoubtedly captured only in small numbers, was ever seen as a way of supplementing the perpetual shortage of Japanese Type 97 and Type 99 sniping rifles. (Author's archives)

THE COMMONWEALTH RESPONSE

The British Army had nothing comparable, as 9,788 of the rifles which had served during World War I had been withdrawn to be scrapped at the Royal Ordnance Depot at Weedon in 1921 – though some of their optical sights had been placed in store. Owing to the wide variety of sights that had been pressed into service, retaining Aldis sights was prioritized though a few PPCo and Winchester sights also survived. The Indian Army, however, had retained a few of the No. 3 (P14) sniping rifles that had been issued to units fighting in Europe prior to 1918, and the Canadians still had small numbers of optically sighted Ross rifles. The Australian Army had nothing, however.

Once ground combat in North Africa had shown the efficacy of German snipers, British authorities who had largely forgotten – or in some instances never known – the utility of snipers in World War I collected as many old rifles as possible and fitted them with optical sights. The rifles were almost always of No. 3 or “Enfield” type, though a few Short Lee-Enfields were used and even an occasional Long Lee-Enfield (though usually confined to training).

Gunmaker Alexander Martin of 20 Royal Exchange, Glasgow, refurbished 421 examples of the “Rifle No. 3 Mk I* (T) A.” The “A” suffix indicated that Pattern 3 and Pattern 4 Aldis sights which had remained in store after the matching rifles had been scrapped in the 1920s had been used. Owing to shortages, however, a few sights made by PPCo, Voigtlander (“Skopar” brand), and Watts & Company were also used. Martin had developed an unusually long one-piece mount, attached to a bracket protruding from the left side of the handguard ahead of the chamber and at the rear by a bracket on top of the action-body bridge

held by a screw-and-slot system that allowed lateral adjustment if needed. The sights were usually brazed to the mount, which meant that the whole unit had to be removed for attention. Most of the sights still displayed the serial number of the Lee-Enfield rifle with which each had originally been used.

Though many No. 3 Mk I* (T) A rifles were used for sniper training, some made their way to the Pacific in British hands. Others saw service in Burma with the British and Indian armies, until ultimately replaced by the No. 4 Mk I (T).

Australian marksmen made good use of a conversion known as “Rifle, Enfield, No. 3 Mk I* W (T),” the Lithgow Small Arms Factory fitting reconditioned No. 3 rifles with 3× M1918 telescopic sights made by the Australian Optical Company. A copy of the PPCo pattern, these sights were fitted in double-claw-type mounts supplied in “high” and “low” variants and held in place by a rollover latch in the rear mount. These rifles helped to stem Japanese advances in Timor and New Guinea alongside Short Lee-Enfields that included heavy-barrel rifles emanating from Lithgow, fitted with aperture sights and, consequently, often retrieved from target-shooters. In addition, an occasional optically sighted sporting rifle could be seen. Many No. 3 Enfield sniping rifles served in Australian hands until the end of World War II, owing to shortages of the perfected heavy-barrel No. 1 Mk III* HT SMLE variant ordered late in 1944.

THE US RESPONSE

The US Army, which had issued a variety of Springfield rifles fitted with Warner & Swasey and Winchester optical sights in 1917–18, also abandoned sniping at the end of World War I. Consequently, when hostilities began in December 1941, hasty attempts were made to rehabilitate rifles and sights wherever possible, including even obsolescent Warner & Swasey prismatic sights as some time was to elapse before a permanent solution was to be found in the M1903A4 sniping rifle. The US Marine Corps, however, was in a much better position. Always keen on marksmanship and target shooting, the US Marines had kept a variety of “accurized” M1903 Springfield rifles that had been used in National Match and similar competitions. These had been selected for their accuracy and fine tuning, and so needed little more than appropriate optical sights to be fitted.

When the Japanese attacked Pearl Harbor, the US Marine Corps still regarded the M1903A1 Springfield fitted with a 5× Lyman 5A telescopic sight (or its Winchester A5 precursor) as the standard sniping rifle. US Marine Corps Equipment Board trials directed by Captain (later Major) Van Orden had been undertaken late in 1940 to find a replacement for this aging combination. Recommending the Winchester M70 sporting rifle fitted with a large-magnification Unertl target sight soon fell foul of the Army Board of Ordnance, which refused to consider anything not based on an existing service weapon. The US Army authorities ultimately

ENVIRONMENTAL HAZARDS

Among the difficulties facing snipers operating in Asia and the Pacific during World War II were the widely divergent environmental conditions, ranging from the snows of the Manchurian winter to the steaming humid jungles of the Pacific islands. Owing to the enormous land areas involved, troops fielded by Japan and her allies and enemies could be called upon to fight in the sprawling towns of China, on the barren steppes of Manchuria, on the open plains and among the teak forests of Burma, or in the Malayan rubber plantations. They could be enveloped in the virtually impenetrable foliage of the Pacific islands – even though New Guinea, for one, had open areas – while major rivers such as the Irrawaddy had to be confronted and steep slopes, often covered with vegetation, had to be overcome.

Daily temperatures in Port Moresby in New Guinea, averaging 91°F in November, rarely dropped below 73°F. Daily temperatures in Manila in the Philippines averaged 75°F in January and nearly 93°F in April. Daytime temperatures in the Burmese city of Mandalay averaged 52°F in January and 102°F in April. Conversely, in Mukden, Manchuria, the mean temperature of nearly 86°F in July dropped to just 3°F in January. In service, extreme temperatures, whether hot or cold, could cause differential expansion or contraction of weapon components' materials that had sometimes been changed to conserve raw material or ease production problems. Results could include "tolerance jams" and misalignments when the components no longer interacted properly. In extreme cases, weapons could seize up or break down entirely.

Average humidity in Port Moresby, 81 percent in April and May, was still 75 percent in August. In Manila, humidity was 62 percent in April and 80 percent in September. Mandalay's humidity was typically 48 percent in March, rising to 77 percent in October. Even

in relatively cold Mukden, humidity still averaged 52 percent in April and 80 percent in July. All-pervading humidity contributed not only to a reduction in the effectiveness of the individual, owing to health issues, but also to failure of equipment. Many materials, such as leather and canvas, rotted away. Moisture entered between the components of rifles, encouraging rust that could lead to jams, and penetrated the supposedly waterproof seals on telescopic sights to compromise the view of the target by "fogging" lenses.

Another consequence of such climatic extremes was the prevalence of disease, rife among troops of all forces involved in the Pacific due partly to their characteristically unhealthy surroundings and partly to the difficulties of maintaining effectual supply chains. Malnourishment became a particular problem in the Japanese forces as they were pressed back by Allied advances as the war ran its course. Karl James records (2018) that during the fighting in Timor, men of the Australian 2/7th Independent Company survived on a diet composed of biscuits, dried apples, tea, and sugar, causing skin infections and diarrhea.

Care also needed to be taken by snipers when encountering wildlife. Mosquitoes spread not only malaria but also dengue and the Zika and chikungunya viruses. New Guinea was home to more than 80 different species of snake. The Papuan taipan, the New Guinea death adder, the New Guinea brown snake, the Papuan black snake, and the New Guinea small-eyed snake, all potentially deadly, were commonly found near human habitation, including pit toilets, and in coconut plantations. Toxins in their venom not only destroy nerve endings and muscles, but can cause paralysis, internal bleeding, renal failure, and cardiac arrest.



US troops on sniper patrol on the island of Bougainville in the Solomon Islands, in dense jungle typical of so much of the combat zone. High temperatures and excessive humidity put a premium on maintenance of arms and equipment. One of the men has an M1911A1 Colt-Browning pistol, while his companion has an M1 Garand rifle. (Hulton Archive/Getty Images)



This Springfield M1903A1 rifle is fitted with the type of Unertl telescopic sight favored by the US Marine Corps. The front-sight protector suggests that this was a rebuilt target-rifle. Note also the Micarta case for the sight. (Morphy Auctions)

developed the M1903A4 sniping rifle, fitted with a 2.5× Weaver-type sight, but the US Marines were equally unimpressed.

In July 1942, the US Marine Corps Philadelphia Depot Quartermaster reported that 1,047 M1903-type Springfields were being stored: 473 M1903 National Match rifles and 574 M1903 Special Target rifles held for the US Marines' shooting teams. Fitting these rifles with optical sights was duly prioritized, the first Unertl sights being delivered in November 1942. Apparently adapted in Philadelphia, the rifles were given sight-mounts attached to the barrel and receiver ring with screws, the handguard being cut away to accept the front sight-base, and the bright-finish bolts were blued to obviate reflections, which could prove fatal in combat.

The "Rifle, M1903A1 Sniper, with Telescope Sight Unertl 8×" was duly approved and supplies reached the Pacific by September 23, 1943, when a memorandum noted that 87 would be issued to the 4th Marine Division. It seems that nine were issued to each rifle company, and four to the divisional headquarters, the two rifles unaccounted for presumably being used for training and instructional purposes. The allowance was increased to 108 per division on August 10, 1945, but had not been implemented when World War II ended.

The original Unertl MST-100, designed for target shooting and actually 7.8× though nominally rated at 8×, had a coil spring around the tube to return the sight after it recoiled on firing. This feature was regarded as a weakness that could allow trapped debris to damage the tube, and was absent from the US Marine Corps sights, even though individual snipers improvised "auto-return" with the assistance of a rubber band cut from a pneumatic-tire inner tube.



It has been estimated that by April 1945 the US Marine Corps had received 1,750 of 3,500 Unertl sights on order, though the M1903A1/Unertl combination was to be issued only in small numbers. Reactions of



US troops in the Pacific jungle. Two are carrying M1903 Springfield rifles fitted with full-length M1905 bayonets and, on the nearest rifle, a Weaver M73B1 telescopic sight. The third soldier carries a Browning Automatic Rifle to provide fire support. (Tom Laemlein/Armor Plate Press)

US Marine Corps snipers were far from consistent, opinions of the sight ranging from “superb” to complaints about its great length and potential fragility. One of the first combat reports, submitted by the 1st Marine Division engaged at Cape Gloucester in early 1944, criticized the sight’s ability to cope with the climate and terrain, whereas the 2d Marine Division snipers found no faults during combat at Tarawa, Saipan, and Tinian, and US Marines involved on Okinawa were generally well-pleased with their rifles and sights.

Though a scathing report by the Marine Raider Battalion fighting on New Georgia Island in the summer of 1943 is now thought to refer to the Springfield M1903A1/Lyman 5A pairing, US Marines were subsequently ordered to replace all their sniping rifles with the standardized M1903A4 rifle fitted with the Weaver M73B1 sight. In April 1945, therefore, the US Marine Corps Quartermaster General recommended disposal of all M1903A1 rifles and their Unertl sights, 1,750 of which had been delivered together with 2,565 Micarta cases. At this time, 800 M1903A1 rifles and 975 sights remained in the Philadelphia Depot. Just 100 were due to be consigned to the US Navy for use on minesweepers, to destroy floating mines, the others being discarded after hostilities ended.

JAPANESE SNIPER TRAINING AND DEPLOYMENT

Owing to the lack of an appropriate school or a unified tactical doctrine, very little specialist sniper training was undertaken in the IJA in World War II. Japanese snipers were rarely used for reconnaissance duties or as

This group of Japanese soldiers armed with 38th Year Type rifles shows how easily men could be concealed in jungle foliage, helped in this case by overhead netting garnished with twigs and leaves. At least 3 million 38th Year Type rifles were made in Koishikawa Arsenal in 1907–32, in Kokura Arsenal in 1932–33, in Nagoya Arsenal in 1933–41, in the Heijo ordnance factory (Jinsen Arsenal) in Korea c.1938–39, and in Mukden Arsenal (renamed Hoten in 1938) in 1932–44. Some were even assembled in the North Chinese Nanking and Tientsin arsenals in 1944–45. (Author’s archives)





The Type 97 sight fitted to the Japanese Type 97 sniping rifle, the shank of its plum-shape bolt handle being bent downward to avoid fouling the sight body when opened, had an integrally cast mount and a lack of elevation or deflection adjusters. Offsetting the mount to the left allowed reloading with single cartridges or from the standard five-round charger, but made the rifle-and-sight combination somewhat awkward. The Type 97 mount (and, indeed, that of the later Type 99 sniping rifle) relied on dovetails engaging a plate positioned on the left side of the rifle action-body by pegs and held by four small screws. A radial lever on the sight-base locks the components, the front or release position being identified with the character *datsu* (*datchaku*, "remove") while the rear or fixed position displays *so* for *sochaku* ("attached"); the radial lever rotates downward when needed. The inner face of the attachment plate has two oval depressions and a centrally placed square lug-plate that slides vertically to allow the sight to be slid back and off the rail once the checkered head of the leaf spring, held by a single screw in the longitudinal channel in the rifle plate, has been depressed. (Morphy Auctions)

intelligence gatherers, such training as they received concentrating principally on ambush techniques, camouflage, and fieldcraft. One lesson learned in China was the beneficial use of indigenous attire to blend with the local population, which increased the chance of a successful ambush. Another was the value of including several individual rifle-pits in a "spider web" to cover a specific area from differing directions.

The Japanese targeting of key personnel such as officers, machine-gunners, and flamethrower operators often rapidly degraded Allied forces' fighting capabilities until the snipers could be neutralized. Tomoyuki Sashiro observed (Pegler 2004: 219) that the job of the Japanese snipers was to interrupt the advances of Allied forces by killing as many men as possible before themselves being killed. Most Japanese military personnel, not merely snipers, considered dying while serving the Emperor to be honorable even though many remained understandably reluctant to take unnecessary risks.

Japanese snipers used Type 97 or Type 99 rifles, customarily fitted with optical sights, but retained open sights largely because long-distance shooting was rarely appropriate in the jungle and it was believed in many

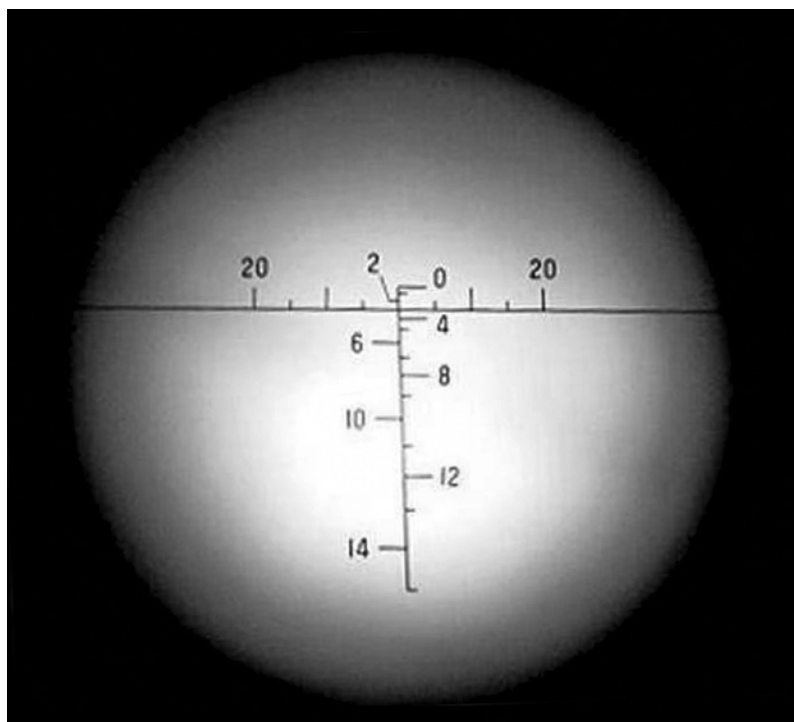
Commanding the jungle, Burma, 1944 (overleaf)

During the campaign in Burma early in 1944, attempting to retrieve territory conquered by the Japanese, members of a British patrol discuss crossing a fast-flowing river. Newly arrived in the jungle, however, the men are comparatively inexperienced. Consequently, they have failed to identify the potential threat of snipers hidden in the treetops. A Japanese soldier equipped with a 6.5mm Type 97 sniping rifle – still widely used in 1944 owing to the limited distribution of its 7.7mm Type 99 successor – has placed the crosshairs of his 2.5× Type 97 optical sight on the chest of the British junior officer carrying a US-made .30 M1 Carbine for personal defense. Like many experienced men, the sniper is well concealed thanks to his palm-frond overjacket, and relies not only on boots with spikes to assist his climb but also on a leather strap to hold him in place by encircling the tree-trunk.





The distinctive reticle of the Type 97 sight was graduated so that the sniper could adjust his point of aim even though the sight lacked external adjustments. Note that the “battle sight,” the intersection of the crosshairs, is set for 300m (328yd). (Author’s archives)



circles that, in such conditions, well-camouflaged marksmen could shoot accurately to 400yd, without wasting the time sometimes lost while acquiring the target through the telescopic sight. Japanese snipers were taught how to use sights at ranges of 600yd or more in a variety of conditions, so that each man would understand how the point of impact varied with wind, temperature, and many other factors. Such preparation could be judged sketchy by Allied standards, but it was adequate for much of the fighting undertaken in Asia and the Pacific.

The Japanese sights, though often excellent optically, lacked the adjustments that Western marksmen would have considered standard features. Such simplicity removed the need to re-zero sights in the hands of inexperienced shooters, but depended greatly on the skill of the individual sniper to estimate aim-point. US Army Lieutenant John George noted that he had tried to check the “zero-return qualities of the scope mount” (quoted in Pegler 2014: 220) by removing the sight several times then replacing it while continuing to fire. He discovered, much to his surprise, that there was no significant change in the point of impact. He also observed that, as the sight had no manual adjustments, even an inexperienced sniper was unlikely to negate the “factory zero” set by the manufacturing arsenal.

Japanese snipers were encouraged to fire from a rest wherever possible, a folding-wire bipod being fitted to the Arisaka rifle’s forend. Though the rest was intended to steady aim, flimsiness proved to be its weakness. Consequently, some men carried small armor plates with an earth-spike protruding downward and a “U”-cut on the upper edge to receive the rifle’s forend.

COMMONWEALTH SNIPER TRAINING AND DEPLOYMENT

The formation in spring 1941 of the first of four Australian Army “independent companies,” based on the British Commandos, marked a change in the sniper’s status. A training camp known colloquially as the “Guerilla Warfare School” was established at Tidal River in Victoria, Australia, and an independent company raised from volunteers was created in Malaya by the 8th Australian Division immediately after the Japanese invasion on December 8, 1941.

Each of the independent companies initially had a strength of 273 officers and men, three 16-man sections forming a platoon. Each section typically had submachine guns (Thompsons, then Owens), a Bren Gun, several rifles including a No. 1 Mk III* often fitted with an EY grenade launcher, a No. 1 Mk III* (HT) or No. 3 sniping rifle, together with revolvers for the sniper and the Bren gunner. Officers often carried their own weapons, sometimes a sniping rifle or a privately purchased sporting rifle with an optical sight.

Guerrilla reconnaissance (GR) platoons were raised after the experience of the 8th Australian Division in Malaya. Among the first was the GR Platoon of the 2/1st Australian Infantry Battalion, formed in Colombo on April 15, 1942, but such units proved to be controversial and were disbanded by November 1942. In their place, 12 snipers were attached to the battalion headquarters company, placed under the control of the battalion intelligence officer, or directed by the commanding officers to serve with individual infantry companies. In addition to the independent companies, snipers armed with No. 3 rifles were attached to Australian infantry battalions, largely owing to lessons learned from the performance of Japanese snipers in Malaya prior to the surrender of Singapore and all British Commonwealth forces in the area on February 15, 1942.

As far as the Australian Army was concerned, beginning in Malaya late in 1941, snipers were employed as scouts to find and then eliminate enemy snipers. While the customarily short-range encounters, which favored snap-shooting, made optical sights largely irrelevant in combat, they were essential for observation, and so a compromise was sought in the issue of rifles with special sights to snipers and telescopes to spotters.

Training was initially sketchy, as many officers had no knowledge of sniping and tactics appropriate to jungle fighting had not been investigated. Attempts were made to employ snipers in Malaya in January 1942, but without much success owing to a lack of experience. Among the lessons learned was the vulnerability of snipers in combat where engagement range was regularly less than 50yd and acquiring targets had to be much quicker than setting range and aligning optical-sight crosshairs before squeezing the trigger. The answer, which became universal where Australian forces were concerned, was to give the “spotter” of the two-man team a submachine gun for local defense.

Yet specialized equipment was often difficult to acquire. Consequently, in addition to Rifles No. 3 Mk I* W (T) and then the heavy-barrel SMLE derivative, individual Australian snipers, depending on location, sometimes had to make do with standard US weapons such as the



ABOVE LEFT

Taken in Papua on August 28, 1942, this informal portrait shows Private Harry A. Lake, a one-time kangaroo hunter who had become a sniper with the Australian Army's 2/5th Independent Company. Lake carries a Lee-Enfield sporting rifle, with a half-stock and open sights. (Australian War Memorial 013155)

ABOVE RIGHT

Pictured on January 25, 1943, Lieutenant James M. Donaldson of Sydney, serving in the Australian 7th Division Cavalry Regiment, was credited with shooting seven tree-based Japanese snipers at Sanananda, Papua New Guinea, with his standard open-sighted SMLE No. 1 Mk III*. (Australian War Memorial 014217)



M1903A4 Springfield or even otherwise-standard M1 Garands. Some snipers preferred the Garand to the standard bolt-action rifles, owing to the Garand's ability to sweep a designated area while firing near-continuously.

There is also evidence that M1941 Johnson autoloading rifles made for the KNIL were used by Australians, at least a few fitted with M1918 optical sights, and a sniper section formed in the 2/30th Australian Infantry Battalion toward the end of 1942 somehow obtained six Canadian Ross rifles that are believed to have been fitted with Winchester A5 sights.

US SNIPER TRAINING AND DEPLOYMENT

The entry of the United States into World War II in December 1941 found the US Army and the US Marine Corps insufficiently prepared for sustained combat. Consequently, Japanese snipers took such a terrible toll that the military authorities were soon forced into taking remedial action. Owing to the absence of standardized guidelines, however, this was done largely at local level.

As in World War I, the shortage of trained men was to a large extent made good by impressing those who had already demonstrated their skills in another context. Charles Sasser and Craig Roberts relate (1990: 21) how it was generally accepted that the best marksmen often came from



A US Army soldier during sniper training at Fort Bragg in Fayetteville, North Carolina, 1942. (Ivan Dmitri/Michael Ochs Archives/Getty Images)

areas such as the Southwest or the hills of rural states such as Arkansas, Tennessee, Virginia, and Kentucky, where from an early age individual shooters pursued jackrabbits, deer, and other game all year round. Many boys could fire .22 rimfire and .30-30 WCF rifles with great accuracy, and so had few problems adapting to an M1903 Springfield or an M1 Garand.

Gradually, the situation improved as pre-1918 ideas were revisited and the teachings of men such as Hesketh-Prichard and McBride were dusted off. Though the US Army expanded the training of snipers at a snail's pace, the US Marine Corps, with lengthy traditions of marksmanship, saw things differently. Consequently, scout/sniper training was regularized, when, in the late autumn of 1942, courses began at Camp Lejeune, North Carolina, and Camp Pendleton and Green's Farm, both in California. These courses concentrated on honing shooting techniques alongside observational and camouflaging skills, and fieldcraft. Most of the trainees had volunteered, though a few had been sent by their commanders after demonstrating an aptitude for marksmanship.

Sasser & Roberts note (1990: 22–24) that the most influential US Marine Corps sniper school was created in January 1943 at Green's Farm in the hills to the north of San Diego, California. The Marine Corps Scout & Sniper School at Green's Farm was run by First Lieutenant Claude N. Harris, a prewar winner of the national rifle championship who had been brought back from service in the Pacific to create a facility from which, every five weeks, graduates would emerge with sufficient training to neutralize the Japanese marksmen who had been taking such a toll of US military personnel. Harris, like McBride and others before him, took the view that a sniper had to be able not only to shoot well but also to survive in battlefield conditions. Being able to hit a bullseye on a target, even at long range, was not enough in itself to guarantee success.

The scout-snipers were usually organized into squads of six or sometimes 12 men, tasked with venturing into no man's land or even behind enemy lines to reconnoiter, acquire information, and if necessary neutralize opposing observation posts, bunkers, and patrols.

Harris's course was based on the "SOS" principle – scouting, observation, sniping – that had been pioneered by men such as Hesketh-Prichard and McBride in World War I. Included in the curriculum, therefore, was use of a compass, reading maps, interpreting aerial photographs, and sketching what could be seen. Other topics included making effective use of camouflage and mastering concealment techniques. Sasser and Roberts note (1990: 23) that, twice daily, students engaged silhouette, disappearing, and moving targets until they could fire accurately at 500yd or more. The last week of the five-week course concentrated on the use of optical sights.

Sergeant John Fulcher, a part-Cherokee farm boy from Texas, described (Sasser & Roberts 1990: 26–28) the often-impromptu nature of early US Army sniper training at Green's Farm. Even though it was widely believed that a sniper's life expectation in combat would be very low, volunteers, including Fulcher himself, could always be found. Unofficial "sniper schools" were often created in the camps where men had volunteered, Fulcher noting that, in addition to range practice at distances of 500yd or more, running, forced marches and stalking were undertaken.

Snipers and the M1903A4 Springfield

US Marine Corps scout-snipers who landed on Guadalcanal in August 1942 carried M1903A1 Springfields equipped with Lyman 5A sights. The Springfield had not been designed specifically for long-range accuracy, as it had a comparatively short, thin-walled barrel, and some US Marine Corps commanders viewed it merely as a stopgap.



A US Marine Corps sniper, believed to be Private First Class Anthony J. Arreri, poses with his M1903A1 Springfield rifle fitted with a Unertl sight. (US National Archives)



Corporal William Coffron, US Marine Corps, fires his M1 Garand at a sniper on Puruata Island during landing operations in Empress Augusta Bay, Bougainville, November 1943. Photo by Captain Patrick F. O'Sheel. (USMC 63280 courtesy of Naval History and Heritage Command)

Among the commanders was Major Van Orden, not only a proponent of a cohesive sniper-training program but who had also repeatedly demanded the introduction of a dedicated scope-equipped sniping rifle that was not just a modified service weapon. In the hands of US Marine Corps snipers, therefore, M1903A4 Springfields were occasionally replaced by privately purchased Winchester M70 sporting rifles fitted with target-type sights. In addition, the M73B1 sight was replaced on many Springfields with the high-magnification (if somewhat delicate) Unertl target pattern.

Snipers and the M1 Garand

The widespread issue of autoloading rifles remained contentious even in 1939. What many commentators saw as poor design and needless complexity was reinforced by the view that using autoloading rifles would complicate training and simply waste ammunition.

Where the M1 Garand was concerned, its idiosyncratic magazine needed to comply with the original 1921-vintage Ordnance Board specification that the magazine not only had to be clip- or charger-loaded but also contained within the stock. Use of Lee-Enfield rifles by the American Expeditionary Forces during World War I had convinced the US Army authorities that detachable magazines were lost too easily, and that projecting magazines not only caught on clothing but also hindered drill movements.

The M1 Garand's cartridge-clip system restricted magazine capacity to eight rounds, and hindered reloading unless new cartridge-clips were available. In addition, the magazine could not be "topped up" with individual cartridges, though this handicapped snipers far less than infantrymen. The cartridge-clip itself ejected automatically after the last shot had been fired. It has been claimed that the "ping" of an ejected cartridge-clip indicated that the firer was reloading, and thus vulnerable, though evidence is lacking; and

suggestions have even been made that soldiers threw empty cartridge-clips to lure opponents to attack into withering fire.

Size was another problem. Like most infantry rifles, the M1 Garand is comparatively cumbersome. It also had a tendency to throw water into the firer's face during the downpours common in the tropics, and was susceptible to fouling when ammunition loaded with substandard wartime propellant was used.

Even so, issuing the M1 Garand gave US infantrymen a considerable advantage over their Japanese opponents, who found that the reckless assaults that had so often been successful in China were now suicidal. In addition, owing to the scarcity of sniping rifles, especially in the US Army, standard Garands were often pressed into service in such roles. An ability to fire follow-up shots rapidly was perhaps their greatest advantage, shared with most semiautomatics, though the Garands were not as robust or reliable as the bolt-action Springfields.

Multiplicity of moving parts rendered semiautomatic sniping rifles much more difficult to manufacture than bolt-action Springfields. Experience showed, however, that skilled US Marine Corps armorers could ensure that individual rifles shot accurately to 800yd – entirely acceptable for jungle fighting.

Owing to the offset sights fitted to the M1C and M1D sniping rifles, a cheek-pad was introduced to help the sniper position his face properly. In addition, to prevent muzzle flash temporarily blinding the sniper or revealing his position, the “Hider, Flash, M2,” known during development as the T27, was adopted on January 25, 1945. The flash hider slipped over the muzzle to be clamped on the bayonet lug, but proved to be unpopular in service even though few reached combat during World War II. The elimination of flash could be marginal, especially when firing at night, and the additional weight bearing on the barrel was believed to compromise accuracy.

Shortages of sights for the M1C Garand were to some extent alleviated by fitting the M73B1 sight instead of the Lyman Alaskan type, but few of the rifles ever took part in combat in the Pacific Theater (they were destined to play a much greater role in the Korean War during 1950–53). The M1C was welcomed enthusiastically by many snipers, but proved to be not only less reliable than the M1903A4 but also less accurate, performance generally being restricted to 2–2.5 MOA when bolt-action rifles such as the M1903A4 and Winchester M70, largely owing to lack of movement in the action during the firing cycle, could often achieve 1 MOA at combat range. In addition, men who had had no specific training often found the M1C Garand's sights difficult to adjust, and the safety catch awkward to disengage.

Snipers and the M1941 Johnson

The first US Marine Corps unit to acquire Johnson rifles seems to have been the 1st Marine Parachute Battalion, whose executive officer, Captain Harry L. “Torge” Torgerson, was a skilled marksman. During fighting on Tulagi and Guadalcanal in 1942, the 1st Marine Parachute Battalion is



A US serviceman practices with his Johnson rifle, which, testified by a whiff of smoke ahead of the bolt handle, has just been fired. (Author's archives)

known to have had 87 M1941 Johnson light machine guns and at least 23 M1941 Johnson rifles that Melvin Johnson had personally donated to Torgerson. The rifles were issued to scout-snipers, one of whom, Platoon Sergeant Harry M. "Tiger" Tully, was credited with 42 kills achieved on Gavutu in the Solomon Islands at ranges as great as 800yd.

On October 7, 1942, responding to a request from the unit's commanding officer, Lieutenant Colonel Victor H. "Brute" Krulak, 650 Johnson rifles were shipped from San Diego destined for the 2d Marine Parachute Battalion, to be used during Operation *Blissful*, the raid on Choiseul Island in the Solomon Islands (October 28–November 3, 1943). On April 1, 1943, the three battalions were re-formed as the 1st Marine Parachute Regiment. Only 242 Johnson rifles were available to the new unit, but they served throughout the Solomon Islands campaign as part of the I Marine Amphibious Corps. After Bougainville, however, the Johnsons were withdrawn and replaced with M1 Garands to official order. Many were scrapped, though a few survivors were returned to the Netherlands at the end of hostilities to serve with that country's navy and marines. US Marine Corps procurement is believed to have totaled just 750 Johnson rifles, 650 of which went to the 2d Marine Parachute Battalion in 1942; the 100 rifles that remained in store were sold back to Johnson Automatics on February 12, 1945.

Opinions of the Johnson rifle vary, though, in addition to a far better magazine, they had several advantages over the M1 Garand as they were relatively unaffected by variations in ammunition and largely impervious to the effects of sand and dust. The Garand had a tendency to overheat during rapid fire, often badly enough to char the inner surface of the handguard, while the ventilated barrel-shroud of the Johnson allowed heat to dissipate. In addition, the Johnson's barrel could be exchanged rapidly if overheated.

On the downside, the Johnson had many small components that were easily lost if the rifle needed to be field-stripped; and the exposed barrel, though easily changed, could be damaged by blows. Even so, the multi-lug bolt locking system went on to influence the highly successful ArmaLite series.

Snipers and the Winchester Model 70

One of the best features of the Model 70 was “lock-time.” A reference to the time lag that occurs in any mechanically actuated rifle from the point at which the sear releases the striker to the ignition of the cartridge, lock-time is influenced by many factors, including the weight of the striker, the strength of the striker-spring, and the distance of travel.

Lock-times of military rifles typically measure 6–8 milliseconds, though attempts have been made to accelerate the process: for example, the “Speed Lock” introduced with the .22 Winchester Model 52 target rifle and eventually incorporated in the Model 70. Patented in the United States (Patent 1741281) by Frank F. Burton of New Haven, Connecticut, on December 31, 1929, this replaced Johnson’s military-style compound-motion trigger, hung from the sear, with a new trigger with a low pivot and rear sear notch, reducing trigger travel by 75 percent and providing for set-screw pull-weight adjustment. In addition, Burton redesigned the firing pin so as to reduce its travel from approximately 0.5in to 0.125in, all of which resulted in greater accuracy achieved by reducing the delay from 0.55 to 0.33 milliseconds. From a sniper’s viewpoint this reduction, though minimal, could help to minimize the effects of, for example, rapid target movement.

Lying prone alongside a Japanese sniper’s victim, a US soldier armed with an M1 Carbine attempts to exact revenge for the loss of his colleague. The pistol-gripped half-stock had a band retained by a spring let into the forend and a handguard running forward from the chamber; and a 15-round magazine protruded ahead of the trigger-guard web, which contained a cross-bolt safety catch. The M1 Carbine was 35.65in long, had an 18in barrel with four-groove rifling, and weighed 5.42lb without the magazine. A swivel on the left side of the band was used in conjunction with a slot cut through the butt to accept a sling. (US National Archives)

Snipers and the M1 Carbine

Introduced to give specialists and noncombatants something more effective than the .45 M1911A1 Colt-Browning semiautomatic pistol, the M1 Carbine was destined to become popular as a support weapon, often carried by snipers’ spotters but sometime used by snipers themselves at short range. The size and bulk of the Garand rifle meant that many US





US Army personnel, clearly on a training range somewhere in Burma, practice with weapons including an M1903A1 Springfield, an M1903A4 with an M73B1 sight, and an M1919A4 Browning machine gun. Note the expended cases, and the rifle grenades, in the foreground. (US National Archives)

military personnel engaged in jungle fighting preferred the M1 Carbine. Though lacking power, and accurate only at relatively short range, the M1 Carbine was not only handier than the Garand rifle but also had a detachable box magazine holding 15 and later 30 rounds.

Some of the first Inland-made T3 Carbines equipped with T120 infrared optical sights, perhaps as many as 500, were shipped to the Pacific Theater in the autumn of 1944, to be used to good effect in the fighting on Okinawa and in the Philippine Islands. Indeed, claims, admittedly uncorroborated, have been made that as many as 30 percent of Japanese casualties in the jungle fighting on Okinawa were due to the availability of Sniperscopes.

The T3 Carbine, redesignated M3 late in 1945, and the M2 Sniperscope – with the lamp on top of the weapon – were subsequently used successfully during the Korean War. The units and particularly the accompanying battery pack may have been heavy, and their performance somewhat limited by the early stage of development, but they presaged today's specialist sighting units.

SNIPER ACCURACY

In addition to the physical characteristics of rifles and their cartridges, the sniper must grapple with many other problems to make shots count. The trajectory of the bullet, which will rise above the sight-line and then drop below if the range has not been set accurately, has an important effect on the strike-point.

Spin imparted to the bullet by the barrel's rifling causes lateral drift, which may be opposed or reinforced by crosswind. Atmospheric pressure

and ambient temperature can play their part, while a bullet heading into the wind will lose velocity quicker than one traveling with the wind, with perceptible effects on the strike-point as the range increases. The implications of engaging targets above or below the sniper's position also have to be taken into account.

As far as the Asia-Pacific Theater was concerned, wind-speed in Port Moresby averaged about 17mph in December and 25mph in July. Manila averaged about 10mph in most months, but 22mph in March and April; Mandalay averaged about 26mph, with a low of 17mph in November and a high of 35mph in June; Mukden's averages were similar to Manila's, though usually 3mph higher.

The handbook for the M1903 Springfield rifle states that, in a mere 10mph crosswind, the M1 Ball would drift 2.22in laterally at 200yd, 17in at 500yd, and a not inconsiderable 60in at 1,000yd, which could easily result in missing the target if allowance had not been made.

The muzzle velocity of a rifle being used in tropical heat can be 100ft/sec higher than in the temperate conditions for which the sights have been calibrated, and so it becomes vital to fire warm-up shots before engaging in combat. Humidity, surprisingly constant but nevertheless excessive in the Pacific, can also have a measurable effect on bullet flight; and, ultimately, movement of a target can require a considerable amount of "target lead" to be applied.

Among other factors to be considered were: the angle and position of the sun; mist lingering over a lake or river; an evening chill that could betray a telltale wisp of propellant smoke; and the effect of changes of temperature if a potential foray stretched from day into night.

Also, of course, range to the target had to be considered. Many factors can influence range-gauging. Underestimates can occur due to clear weather, or if the sun is behind the firer; if the terrain is rough or undulating; when shots are taken uphill; when the lower part of the target is obscured; if the shot is taken across water; or if the target contrasts too sharply with the surroundings. Conversely, overestimates may result if it is rainy or cloudy; at dawn, dusk, or in shade; when the shot has to be taken against the sun; or when shooting downhill. Shots will fly high into a headwind and hit low in a tailwind; and it is notoriously difficult to make accurate assessments when in the prone position.

Shooting results are now often assessed with the aid of "minute of angle" (MOA) – one sixtieth part of a degree, generally taken to be equivalent to a 1in group at 100yd, though the true conversion is 1.047in. This difference of less than 5 percent has no particular significance in combat: at 1,500yd, the error is less than 0.75in. The assumption that "1 MOA" equates to a 1in group at 100yd, a 2in group at 200yd, and a 5in group at 500yd is somewhat simplistic as performance often degrades as range increases.

Snipers customarily received modified versions of standard infantry rifles. Whereas standard weapons were usually capable of 2–3 MOA (equating approximately to group-diameters of 2–3in at 100yd), those that had been selected could sometimes achieve better than 1 MOA at 500yd or more. This gave them a "one shot, one kill" capability if the

sniper could make use of it, and, of course, if the quality of the ammunition matched that of the rifle. Wise snipers would select cartridges from a single manufacturing batch, often “dry-chambering” each one to ensure that dimensions were consistent. What would fit one rifle sometimes would not fit another in precisely the same way – and no two cartridges were exactly alike.

Optical sights in action

Using an optical sight unquestionably increases the chance of hitting a target more than 200yd away by removing the necessity to align comparatively crude open sights accurately. Many military-style front-sight blades, often of barleycorn or inverted-“V” form, were broad enough to obscure a man-size target sited beyond about 300yd. Owing to the use of comparatively delicate crosshairs, of course, this drawback does not affect optical sights, which, in addition, allow firers to estimate the amount of “hold over” that is needed to compensate for the bullet dropping during its flight to the target.

The optical sights of World War II were comparatively minor improvements on their 1914–18 predecessors, though the use of large-magnification Unertl sights by US Marine Corps snipers during the island campaigns in particular, presaged the variable-power sights used today. Their mounts came in several patterns, ranging from two-ring types, with one mount above or ahead of the chamber and the other on the body-bridge behind the feedway, to the one-piece system favored by the Japanese in which the sight and mount were formed as a single unit. Some mounts positioned the sights on the centerline, while others offset the sights to the left side of the breech, generally to facilitate reloading.

Typical Japanese optical-sight cases, made of canvas. These accept both a sight and its integral mount, explaining the construction shape. (Morphy Auctions)





The distinctive protective case accompanying US Unertl sights was made of Micarta, patented by George Westinghouse in July 1913, which was a composite of linen, canvas, or similar fabric with a thermosetting plastic such as Bakelite. (Rock Island Auction)

Centerline mounts were sometimes higher than the offset designs, but many marksmen preferred that their sight-line duplicated that of the bore-axis. Offsetting sights to some extent compromised sight-line. If an offset sight was zeroed for a particular distance, the firer had to allow at other ranges for the fact that line-of-sight and the line of the bullet's flight diverged. This undoubtedly reduced the chances of a successful strike, especially at long range.

As far as construction is concerned, pre-1945 optical sights usually have a seamless tube 25–30mm (0.98–1.18in) in diameter, drawn from aluminum or sheet steel, which contains lenses, a reticle, and often, but not invariably, a method of adjusting focus. The multi-element lens farthest from the shooter's eye, the objective, forms the "primary image" – which, but for the inclusion of a separate erector lens, would be inverted. The image passes out through the eyepiece to enter the pupil of the firer's eye. Optical sights normally magnify the image, but the final size can vary enormously.

Differences among individual sights can be nothing other than markings and external finish, but some makers favored simplicity while others erred toward over-complication. Japanese sights, for example, customarily lacked adjustments for windage or elevation and were accompanied by mounts that were generally rigidly fixed in place. Elsewhere, drums were often provided with audible clicks to guide adjustment vertically and laterally, and mounts could be surprisingly complex. Martin Pegler explains in detail (2017: 8–15) the needless complexity of German sights. Simplicity was undeniably associated with enhanced reliability, but asked much more of the sniper than the multi-adjustable sights.

A wide variety of reticles and range-finding graticles was used. Owing to differing designs, each sight presented the sniper with a differing "picture." For example, the "T"-shaped graticle of the 2.5× sight used with the Type 97 rifle, which lacks external adjustments of any type, generally has a vertical bar graduated "0" through "15" – indicating 0–1,500m (0–1,640yd) – and a horizontal bar graduated "0" through "20" left and right of the vertical arm to handle deflection. The "battle sight" at the point of intersection serves for 300m (328yd). The advantage of this arrangement, controversial though it remains, was that a Japanese sniper with experience of such sights could fire much more quickly than if he had to adjust elevation and deflection manually. The idea was retained with the 4× sights fitted to the Type 99 rifle, though the vertical bar, depending on manufacturer, can take ladder-form.

Rubber eyepieces permitted the sniper to place his eye so that peripheral light was excluded but ensured he was not hit by the sight itself while firing. Detachable lens caps were also common, translucent patterns doubling as filters for use on particularly bright days. Specially made cases, usually made of leather or canvas, were also widely issued.

The light-gathering qualities of an optical sight can be readily quantified, relative brightness being calculated simply by dividing the effective diameter of the objective lens (in millimeters) by the magnification,

then squaring the result. As it is widely agreed that the diameter of the iris of the eye, which controls the passage of light, is 3mm (0.12in) in daylight, 5mm (0.20in) in “dark dusk,” and 7mm (0.28in) at night, a shaft of light with a diameter greater than that of the iris is wasted. A sight with relative brightness of 25 would allow virtually all available light to pass in “dark dusk” conditions, but a relative brightness of 11 is very poor and so the M1908 Warner & Swasey sight – to give just one example – would perform inefficiently even in daylight.

Used in both World Wars, the British 2.5× Aldis sight – with an objective lens 20mm (0.79in) in diameter – would have a relative brightness of 64: $(20 \div 2.5)^2$. Comparative figures for the 2.5× Japanese Type 97 and US M73B1 sights – the latter nominally 2.5×, but widely reckoned to have been more like 2.2× in practice – are 58 and 67 respectively.

Ammunition and logistics

Ammunition was another of the important performance-limiting factors that had to be considered. The best ammunition that could be obtained was essential, cartridges being selected if possible from the same manufacturing batch to ensure consistency of performance. Experienced snipers knew to check each cartridge visually and to clean and, if possible, cycle it “dry” through the rifle action to reduce the likelihood of jamming. This was not possible with the M1C and M1D Garands, however, owing to the clip-loaded magazine system that precluded loading single rounds.

In 1941–45, the wide variety of bullet designs was partly due to the advent of specialist loadings. While Japanese, US, and Commonwealth snipers could use armor-piercing and tracer variants, incendiary ammunition was rarely employed, as its utility could be minimal. Shooting was usually undertaken with standard ball cartridges unless the task called for armor-piercing or tracer ammunition to be used. The weights of bullets varied with ball and tracer, particularly, generating differing muzzle velocities. In addition, the shape of the bullets could also play a part: round-nose bullets will not travel as far as those that are pointed, and the presence of a “boat-tail,” which effectively improves airflow over



Men of the 5307th Composite Unit (Provisional), aka Merrill's Marauders, patrol a Burmese jungle. The first two men have M1 Carbines, the third carries an M1 Garand rifle, and the fourth in line has an M1928A1 Thompson submachine gun. Three different types of ammunition – .30 Carbine, .30-06, and .45-caliber, respectively – were issued for these small arms, illustrating the complexities of battlefield logistics during World War II. (© CORBIS/Corbis via Getty Images)

AMMUNITION TYPES

The cartridges chambered in the principal sniping rifles were all of similar basic design: a brass case, usually bottlenecked, contained a charge of nitrocellulose or similar propellant and a centerfire primer. Caliber varied, but only within a comparatively small range. The Japanese 6.5mm was the smallest while the British .303 (7.7mm) – also, somewhat oddly, used by the Japanese as the Type 89 in Lewis-type machine guns – was marginally the largest, even though the US .30-06 cartridge was the most powerful.

Japanese ammunition

The first Japanese sniping rifle, the Type 97, chambered the 6.5×50mm semi-rimmed cartridge introduced with the Arisaka rifle in 1897, whereas the Type 99 accepted the 7.7×58mm rimless cartridge adopted in 1939.

Known as the Meiji 38th Year Type, the 6.5mm cartridge existed in several types, generally identified by the color of the case-mouth seal. The standard cartridge, with a red seal on the neck of the 1.98in-long brass case, contained a jacketed lead-core spitzer bullet weighing about 139 grains (9.01g). The nitrocellulose propellant charge was about 33 grains (2.13g), giving a muzzle velocity of 2,500ft/sec.

Tracer ammunition had a green seal, while armor-piercing ammunition had a black seal. There is often claimed to have been a special “sniper round,” containing a charge of only about 31 grains (2.01g) and a flash-suppressor, but the case for its existence is largely unproven. A total of 100,000 “sniper rounds” are said to have been made during development of the Type 99 sniping rifle, but, at the end



A five-round charger loaded with Japanese 7.7mm Type 99 cartridges. (International Military Antiques)

of the trials, the authorities concluded that introducing a new cartridge was not only too costly but also placed additional strain on the supply chain. Surviving cartridges were expended in China.

There was, however, a special low-pressure cartridge with a charge of 32 grains (2.07g), apparently introduced for the Taisho 3rd Year Type heavy machine gun, and this may have led to the misidentification of the sniping variant. In addition, the unusually long barrel of the Type 97 sniping rifle helped to limit muzzle flash simply by allowing more of the propellant to burn behind the projectile while still in the bore.

The Type 99 rimless cartridge evolved from the Type 92 semi-rimmed cartridge, which had encountered extraction problems when tested as a potential infantry-rifle round. The 2.27in necked case, brass but often green-lacquered steel during World War II, contained a lead-core spitzer bullet, 1.39in long and weighing about 185 grains (11.98g), generally with a gilding-metal sleeve. Muzzle velocity with the 42-grain (2.72g) charge was about 2,330ft/sec. The case-mouth seal was red or a dark pink.

Tracer and armor-piercing cartridges were also introduced, with green and black case-mouth seals respectively. The tracer bullet was about 1.48in long, whereas the armor-piercing type was the same 1.39in length as the standard ball ammunition.

British and Commonwealth ammunition

Tests had been conducted during World War I with experimental .276 cartridges intended to be issued specifically to snipers to deal with armor-plate protective shields used by the Germans, to be issued with .276 P13 rifles that still remained in store in 1917, but the development of suitable .303 ammunition had brought work to a halt. By 1941, the standard sniping rifles, whether of Lee-Enfield or Enfield type, chambered the .303 rimmed cartridge. The standard ball round, which had been announced in the List of Changes on June 6, 1916, was the Mk VIIz. The case mouth was coned into the bullet cannelure, while a dark-purple annulus around the percussion cap had replaced a black ring in May 1920. Loaded with 41 grains (2.65g) of single-base nitrocellulose NCZ3 propellant instead of Cordite, the Mk VIIz remained in production until the demise of the .303in rifle in British service.

Announced in the List of Changes on July 30, 1918, the “Cartridge, Small Arm, Ball, .303-inch NC, Mark VII Wz” was a derivative of the Mark VIIz intended to pierce armor plate. The bullet had a steel core set in a lead/antimony sleeve inside a cupro-nickel-coated steel envelope. Often found with varnish around the case mouth to improve resistance to moisture, the cartridge contained NCZ3 nitrocellulose propellant and had a green cap annulus. It was subsequently renamed “Cartridge, Small-arm, Ball .303-inch W Mark Iz.”

The first British tracer rounds had been developed during World War I, when a request was made for something that burned



A standard British charger loaded with five .303 ball rounds. (International Military Antiques)

brightly enough to be seen in low visibility. The Mark I was approved in 1914, but was not especially successful. The "Cartridge, Small Arm, Tracer, Spk [Sparklet was a tradename of the manufacturer Aerators], .303-inch Mark VIII" was approved on June 23, 1916, and subsequently joined by a "z" variant loaded with nitrocellulose propellant. Changes made to the manufacturing process resulted in what were renamed "Cartridge Small Arm, Tracer .303-inch G Mark I" and "Iz."

The G Mk II tracer round was introduced into service in July 1939, followed by the G Mk IIz and then the Royal Navy's G Mk III, introduced in October 1940. The bullet of the G Mk II weighed 154 grains (9.97g), with a lead core, jacketed with copper or gilding metal, ahead of a canister containing 10 grains (0.64g) of trace composition and 6 grains (0.38g) of priming composition. A 35-grain (2.26g) cordite MDT charge gave a muzzle velocity of about 2,300ft/sec.

US ammunition

The US sniping rifles, Springfields and Garands alike, all chambered the .30-06 rimless cartridge. The "Cartridge, Ball, Caliber .30, M1" had been standardized in 1926 though it was declared obsolete on August 17, 1944. The bottlenecked brass case, 2.494–2.479in long, contained the boat-tailed M1 Ball, averaging 1.310in long, which had replaced the Ball M1906 in 1925. Muzzle velocity stabilized at about 2,645ft/sec with Dupont propellant, giving a maximum range of about 5,500yd.

Designated on September 15, 1938, the "Cartridge, Ball, Caliber .30, M2" was loaded with a light flat-base version of M1 Ball to reduce both weight and recoil. It was duly standardized on November 9, 1939, to replace the M1 cartridge. Muzzle velocity was 2,805ft/sec; the bullet was 1.125in long and weighed 151 grains (9.78g).

Standardized on July 29, 1926, the "Cartridge, Tracer, Caliber .30, M1" contained a gilding-metal-clad 152.5-grain (9.88g) bullet,

1.43in long, which was distinguished after February 1930 by a red-painted tip. Maximum range was 3,450yd, with trace restricted to 125–750yd; muzzle velocity was 2,715ft/sec. An alternative bullet introduced early in World War II, made of gilding-metal-clad steel, weighed 143.5 grains (9.29g) and gave a muzzle velocity of 2,750ft/sec.

The "Cartridge, Armor-Piercing, M2," standardized in 1940, had a black-tipped 168.5-grain (10.91g) bullet with a tungsten/chromium-steel core in a gilding-metal sheath. Muzzle velocity was 2,775ft/sec.



Unusually, the M1 Garand cartridge-clip, loaded with eight .30-caliber cartridges, was essential to the function of the rifle, which could not be loaded with individual cartridges. (International Military Antiques)



Ammunition was customarily carried in pouches and bandoleers, such as this US Marine Corps-marked M1923 webbing pattern accepting five M1 Garand cartridge-clips. (International Military Antiques)

the bullet's surface, can also play a part. Consequently, the firer had to be aware that flightpaths could diverge sufficiently to be of real significance should the target be far away.

In addition, the availability of specialist ammunition depended greatly on effectual supply-chains that were not always evident in Asia and the Pacific. The problem affected Japanese forces in particular, owing to use of several different small-arms cartridges. In addition to the 6.5mm 38th Year Type and 7.7mm Type 99 rounds chambered in the Arisaka rifles, the 7.7mm Type 89 (the British .303) was used by Vickers and Lewis guns in Japanese service, and the 7.7mm Type 92 was confined to certain machine guns. There was also 7.92mm Type 98, the standard German-service cartridge introduced to Japanese air service with MG 15 aircraft machine guns supplied during the 1930s.

Armor-piercing rounds were useful against vehicles, aircraft, and similar "soft-skin" targets, even though comparatively few armored vehicles were to be encountered beyond the beachheads. Tracer ammunition could be used to indicate the position of individual targets, though prevailing humidity reduced the utility of tracers to set "soft targets," grass, and similar material alight in a way that was common in colder and drier European theaters. Phosphorus used in incendiary and certain other bullets customarily restricted to air service as far as the Allies were concerned, remained an effectual "fire-starter" in virtually all conditions as it ignited on contact with air.

Another problem concerned the reduction in the weight of tracer bullets as the trace-pellet was consumed during the flight to the target, causing flightpaths to diverge markedly as range increased. The British .303 G Mk II, approved in July 1937, had a cupro-nickel or gilding-metal jacketed 154-grain (9.97g) flat-base bullet containing a lead/antimony core ahead of a copper canister containing 6 grains (0.38g) of SR370 and 10 grains (0.64g) of SR390 priming composition. A charge of 35 grains (2.26g) of Cordite MDT 5-2 or 36 grains (2.33g) of NCZ3 gave a muzzle velocity of about 2,300ft/sec, but the trace lasted only 1,000yd. By this time the bullet weight had reduced by 16 grains (1.03g) and, as a consequence, tended to strike higher than a ball round of the same initial dimensions would have done.

As we have noted, one of the greatest problems facing the sniper fighting in Asia or the Pacific was the potential deterioration of weapons, ammunition, and equipment in the tropics, where heat and humidity reigned. Ammunition suffered greatly when cartridge cases, even those made of brass, corroded badly enough to cause weapons in which they were chambered to jam. Verdigris acted like cement if the chamber was hot, often jamming the empty case and rendering the rifle unusable. Consequently, wise snipers wiped their ammunition clean before use. Perceptible loss of performance at best, or misfires at worst, arose if propellant became damp. If nothing else, bullets encountered more friction and consequently lost velocity more quickly while traveling through humid air than in dry conditions. This in turn had an effect on trajectory and, ultimately, strike-point.



Hitting the mark

Improvements in optical sights, and better training, enhanced performance. Tactical discipline ensured that shots were used more effectively, and individual snipers gained knowledge of their craft so that, for example, range-gauging mistakes could be minimized if several men engaging the target simultaneously set their sights differently to ensure that spread-of-shot would overcome any miscalculation of range.

The advent of electro-optical sights came too late to affect the outcome of World War II, even though the Germans made very limited use of the ZG1229 Vampir infrared sight and the US Marine Corps made highly effective use of the Sniperscope on Okinawa and in the Philippines in 1945. Such equipment was to have a far greater effect in the Korean War, where the Sniperscope was used successfully not only by the US armed forces but also by the Australians and led, ultimately, to the image-intensifying sights and laser-assisted rangefinders issued to the snipers of today.

Prior to the introduction of appropriate measuring equipment, claims were often based on “pacing the distance,” without taking into account that a pace is considerably less than a yard. Consequently, a “1,000-pace” kill would equate to about 775yd. A 1,400yd kill is said to have been made by Sergeant Major Herbert W. Seigh of the American Expeditionary Forces, firing an M1903 Springfield rifle in February 1918, and many claims of success at similar ranges can be found in World War II reminiscences even though few can be validated largely because there are so many limiting factors to be taken into account. Yet the ability of the best snipers to calculate variables so quickly that many of their shots counted as hits has to be acknowledged.

Assessing the performance of individual Asia-Pacific Theater snipers – particularly Japanese – at long range is difficult, as combat often took place at a comparatively short distance even though the Manchurian

July 14, 1944: an African American soldier of the US Army's 93d Infantry Division aims his M1 Garand with fixed bayonet during combat in the Pacific. Snipers generally avoided using bayonets, but images sometimes show bayonets fitted to Japanese Type 97 and Type 99 sniping rifles. Therein lay a potentially serious problem, as attaching a bayonet can affect a rifle's point of impact by placing additional strain on the barrel or forend and thereby altering barrel harmonics. Trials undertaken by the British Army's School of Infantry in July 1908 with a Russian Mosin-Nagant rifle showed that firing the rifle fitted with its comparatively lightweight socket-bayonet moved the point of impact 24in down and 5.2in to the left at 200yd. Semiautomatic rifles, particularly recoil-operated patterns with moving barrels, were particularly vulnerable. Even the gas-operated M1 Garand, which had a stationary barrel, was affected by attaching the standard M1905 sword-bayonet: a lighter, short-bladed M1 derivative was introduced, but even this failed to solve the problem. (Bettmann/Getty Images)

steppes and the Burmese plains offered far more open terrain. Even so, Private Donald Latimer of the Australian 2/7th Independent Company, a prewar rifle-club marksman who had been recommended as a sniper despite virtually no military training, claimed to have picked off individual targets at ranges as great as 800yd with his No. 3 Mk I* W (T)/P18 sight combination.

US Marine Corps Private Daniel Cass, Jr., described (Sasser & Roberts 1990: 73–78) an attempt to neutralize hostile Japanese machine-gun fire, made on Okinawa in 1945 with the assistance of Corporal Chester Carter acting as observer. Despite being hindered by fog and mud, the US Marines had reached a ridge overlooking the valley in which Japanese machine guns could be heard to fire. American voices could also be heard down in the valley, as US troops tried to negotiate shell craters and shattered forest. Some had taken cover behind whatever they could find, but more than a few lay dead on open ground enfiladed by the Japanese machine guns.

By using his optical sight and Carter's telescope, Cass could see the caves, coral ledges, and tree stumps. As he watched, a US Marine seeking to change position was killed by a shot to the head. Carter then located a well-camouflaged machine-gun nest beneath a ledge full of shallow caves, and, at last, Cass could discern traces of smoke, slightly bluer than that associated with shellfire and darker than the lingering fog. Then muzzle flashes from several firearms lit up the shadows.

Cass judged the distance from his position, across the valley to the machine guns to be no less than 1,200yd. Carter confirmed the range to be 1,200–1,300yd, while Cass, having never shot beyond 1,000yd in anger, tried to assess the effects of factors such as wind, heat-haze, and swirling fog. In addition, his cartridges had come from standard-issue ammunition boxes and could not be relied upon to meet expectations.

After due consideration, but knowing that a lot was being asked of his marksmanship in the foggy conditions, Cass loaded a tracer round into his Springfield and elected to use a telephone pole on the bank above the machine guns to check his range setting. With Carter's help, he set the elevation knob and aligned the crosshairs on the target.

The Japanese machine gun began to fire just as Cass pressed his trigger. With the aid of his telescope, Carter could see the bullet streaking through the air. The first one hit the barricade protecting the machine gun. Knowing the settings to be correct, Cass continued firing until the machine-gun fire ceased.

Sniper vs sniper, the Pacific, 1945 (opposite)

The success of the island-hopping campaign in the Pacific Theater, as the war ran its course, allowed US forces to get ever closer to the Japanese mainland despite the casualties suffered at places such as Iwo Jima. Here, guided by his binocular-equipped spotter armed with the M1 Carbine visible in the foreground, a US Army sniper aims his standard .30-caliber M1903A4 Springfield rifle/M73B1 optical-sight combination at a Japanese sniper -- partly camouflaged by his palm-frond jacket -- who has been seen ascending the tree of his choice.





IMPACT

Snipers on the battlefield

One of the important lessons learned from fighting in Asia and the Pacific during World War II was that the value of snipers had become ever-more obvious as the campaigns broadened. The Japanese were at least partly ascendant in the opening phases, which brought them to the gates of India and greatly reduced US influence in the oceanic sectors; but this changed perceptibly once the Allies, particularly Australian and US forces, regained the initiative.

The situation was bolstered by ever-increasing Allied output of weapons and equipment, effectively neutralizing what once had been seen as a very pressing threat from Japanese snipers making good use of treetop positions. Another important factor was the inability of the Japanese to maintain adequate supplies of food and ammunition. This was partly due to tremendous losses of shipping resulting from Allied aerial superiority and highly successful US Navy submarine warfare, but also because the concept of honorably “Dying for the Emperor” had taken near-universal hold among the Japanese forces. Consequently, US Army and Marine Corps snipers made considerable contributions to the island campaigns, helped not only by the introduction of rifles derived from the Springfield and the Garand, but also by effectual counter-sniping techniques.

SNIPING EFFECTIVENESS

Though British observers in Burma regarded Japanese sniping as relatively ineffectual, Australians and US forces engaged in the Pacific had a much higher opinion of their opponents. Many testified that Japanese snipers, particularly those whose psychological suitability and acclimatization to jungle conditions made them a natural choice for the role, were very effective.



A Japanese sniper armed with a Type 97 sniping rifle scales a tree in search of an appropriate vantage point. He lacks the camouflage suit or palm-fronds often used as camouflage, and the spiked overshoes intended to facilitate tree-climbing. Though Japanese equipment was often subjected to criticism from military personnel, sometimes for reasons which were as much political as practical, US Army Lieutenant John George was impressed by a captured 6.5mm Type 97 rifle "at the short ranges — as near 100m [109yd] as I could estimate. All the shots were bulls. At 200m [219yd] the weapon kept everything inside 8 inches, even with some bad holding involved. The gun continued to behave beautifully, not missing any of the settings for ranges up to 400m [437yd]" (quoted in Pegler 2004: 220). (Author's archives)

Lieutenant Michael L. "Mick" Sheehan of the Australian 2/5th Independent Company noted (James 2018) that patrolling unknown territory could be accompanied by elation — increasing the chance of making mistakes — but was more often fearful, owing to the chance of being hit by a sudden burst of Japanese machine-gun fire or a treetop sniper's bullet. Sergeant Trevor King of the 55th Australian Infantry Battalion observed (Wahlert & Linwood 2014: 128) how one of the worst things that could be done was to look up at a treetop, as the sniper would see the onlooker's pale face amid the greenery and fire immediately. Far better, said King, to look from the corner of an eye or from beneath a helmet.

The Japanese predilection for climbing trees all too often proved fatal when the canopy was raked with Allied automatic fire. In addition, the Allied forces customarily had better equipment, more effective backup once aerial superiority had been achieved, and far greater training for their role. As the campaigns progressed, therefore, the effectiveness of Japanese snipers steadily declined in the face of concentrated Allied firepower that could be used to rake treetops regardless of whether snipers were or were not concealed therein.

The 7.7mm cartridge had been adopted by the Japanese in 1939, after combat experience in China, but the *US Marine Corps Gazette* reported in January 1945 that many of the Japanese snipers engaged in the Asia-Pacific Theater were still using 6.5mm rifles, and that though the bullets would not penetrate foliage like the regulation .30-06 Ball M2, they would still penetrate a regulation US Army helmet at 150yd or more. The text also drew attention to the relatively small amount of propellant smoke and muzzle blast generated on firing, which allowed Japanese snipers to 'tree-up' and fire with comparatively low chances of being detected.

One of the problems for the Japanese armed forces was that many of the tactics employed by Japanese snipers verged on suicidal and their lifespan was often very short as a result. No matter how well the individual positions had been camouflaged, with the use of capes made of foliage, tying oneself to a coconut tree made rapid escape near-impossible once spotted by the enemy and no quarter was given if a sniper fell or otherwise descended from the canopy.

Individual Japanese snipers often killed several of their adversaries, but ever-increasing Allied firepower regularly brought their service to an end. Though data is largely absent, no Japanese sniper with a “kill total” comparable with those of leading Allied marksmen has ever been identified.

Mounting the Type 97 sight on the left side of the Type 97 rifle facilitated reloading, but made the combination awkward to use. The sight not only lacked focus adjustment, but the sniper also had to rely on a multi-line graticule to estimate elevation and deflection.

As most shots taken by Japanese snipers in the Asia-Pacific Theater occurred at ranges less than 550yd, the Type 97 sniping rifle – and then the Type 99 – performed well enough. In addition, the 6.5mm bullet had a flatter trajectory than the Japanese 7.7mm or US .30-06, at least at short range, and US soldiers sometimes turned captured Japanese rifles against their erstwhile owners as the Type 97’s reduced muzzle flash, owing to the length of the barrel, helped to reduce the chances of Allied positions being successfully interdicted.

It has been claimed that Japanese snipers were issued with a special 6.5mm reduced-charge cartridge containing a flash suppressor, but such claims lack authentication. It is suspected that the use of cartridges intended for the 6.5mm Taisho 3rd Year Type heavy machine gun, which were less powerful than rifle ammunition, lay behind the claims.

Considered as a group while not denying individual successes gained in the confines of jungle, Japanese snipers had comparatively little effect at long range. Many of them preferred the 6.5mm Type 97 to the 7.7mm Type 99, as it was judged to be more accurate and had a softer recoil.

Australian exploits in Timor and elsewhere confirmed the value of sniping as a means of disrupting numerically superior forces by concentrating on high-value targets such as officers and machine-gun crews. Testimony to the effectiveness of the early Australian Army snipers is given by the 2/2nd and 2/4th Independent companies operating in Timor during early 1942, struggling to contain the Japanese forces. In spite of the adverse conditions, the Australian commandos claimed to have killed at least 1,500 of their adversaries for a loss of merely 40 men. The exploits of Private Mervyn L. “Doc” Wheatley have been widely acknowledged, Karl James noting (2018) that Wheatley accounted for eight of the 12 Japanese fatalities in an action of April 25, 1942, and that he once killed 12 of his opponents without wasting a shot. Wheatley’s total of 47 kills on Timor has been disputed, but there can be no doubt that he was an excellent sniper.

During the fighting in New Guinea, according to Major Gordon King (Wahlert & Linwood 2014: 120), commanding the 2/6th Independent Company, his eight snipers were responsible for many of the several hundred Japanese deaths inflicted during a two-day period in September 1943. One of those snipers, Private Walter “Wally” Roach firing a No. 3 Mk I* W (T) rifle, scored several kills at ranges up to 400yd.

Another noted long-range performer was Private Donald Latimer of the 2/7th Independent Company, who claimed to have obtained kills at up to 800yd with the No. 3 Mk I* W (T) even though he regarded the rifle as an encumbrance in the close confines of jungle fighting where an Owen or similar submachine gun would be preferable.

DEALING WITH SNIPERS

Despite a lack of specialized training, Japanese snipers were able to use jungle terrain to great advantage. This was highlighted in a report made by 18th Australian Infantry Brigade during the battle for Buna in early 1943, demanding the development of effective counter-sniping procedures. Australian Army teams had been formed of snipers, observers armed with light automatic weapons, and men who were effectively to act as “lures” with the aid of dummies if necessary. Yet these teams proved to be only partly effective against Japanese snipers making the best use of treetop hides or well-camouflaged pits – the so-called “spider holes.”

Suggestions to employ mortars or enlist friendly artillery to neutralize Japanese snipers were often implemented successfully. At least one instance of a .55in Boys antitank rifle dispatching a Japanese sniper has been recorded, and there were undoubtedly many other instances of nonstandard weaponry being used in a counter-sniping role. Flamethrowers were employed when available, particularly by US Army personnel, and grenades could be fired from rifles – including Boys antitank rifles in Australian hands – equipped with suitable launchers.

Armored vehicles could be used to eliminate Japanese snipers by firing at point-blank range or even deliberately crashing into the trees to dislodge their occupants; and in areas where the Allies enjoyed aerial supremacy – ever-widening as World War II progressed – calling in ground-attack aircraft such as the Bristol Beaufighter and the Lockheed P-38 Lightning was by no means unknown.

The most common method of dealing with Japanese snipers, however, was to rake the jungle canopy with automatic fire, which could create



A British soldier, carrying an SMLE No. 1 Mk III* rifle fitted with a P1907 sword-bayonet, escorts a Japanese sniper captured near Pegu, Burma. (Keystone/Getty Images)



A US sniper ascends a tree on Guadalcanal in the Solomon Islands, late 1942. (© CORBIS/Corbis via Getty Images)

lethal wood splinters even if no direct hit had been made. Submachine guns were useful only at comparatively close quarters, so machine guns were preferred. Thompsons, Sten guns, and in particular the Australian Owen design were all used as short-range support weapons, however. Then came the .30 M1 Carbine and, eventually, the selective-fire M2 variant, which offered a good rate of fire and a much longer effective range than submachine guns.

The British and Australians had the Vickers and an occasional Besa gun, while the US armed forces used the Browning, but the weight of these belt-fed weapons and their mounts hindered portability. Consequently, light machine guns were far more useful not only for raking treetops but also to act as sniping weapons if purpose-designed firearms were unavailable due to damage or supply problems.

The British and the Australians had Bren Guns, though these were initially in short supply and so Lewis guns of various types were used instead. The Indian Army had also standardized on the Bren Gun, though some Vickers-Berthiers remained in service. The Japanese had the Type 96 and Type 99 light machine guns, while the US Army had the Browning Automatic Rifle (BAR) and the US Marine Corps made limited use of Johnson light machine guns acquired from an order placed on behalf of the KNIL but only partly fulfilled when the Japanese overran the Netherlands East Indies in 1942.

The Bren Gun, the Vickers-Berthier, the Browning, and the Japanese machine guns were gas-operated, and all but the Browning, which had a box protruding beneath the receiver, fed from detachable box magazines on top of the breech. The Johnson design, relying on short recoil, had a magazine protruding laterally to the left of the breech and an effectual quick-detachable barrel that allowed the gun to be carried in US Marine Corps "Paramarines" leg pouches.

The Bren Gun had originally been intended to accept an optical sight, an idea that was subsequently discarded though the sight was adapted to become the No. 32 issued with the perfected British sniping rifle, the No. 4 Mk I* (T). Consequently, the Japanese Type 96 and Type 99, widely issued with telescopic sights, were the most likely of the light machine guns to serve in a sniping role.

The Johnson light machine gun was particularly handy, many surviving images showing them in the hands of US Marines in the Pacific. Although there is no evidence that any were fitted with optical sights, several individuals have testified to the utility of the Johnsons for snap-shooting and counter-sniping.



CONCLUSION

When World War II came to an end and they were no longer the focus of attention, snipers were discharged from service and their weapons were withdrawn to be sold, placed in store, or – all too often – simply destroyed. Fortunately, when the Korean War began in June 1950, enough equipment remained in Allied arsenals to be used to good effect once again. Indeed, M1 Garand-based sniping rifles saw much more service in Korea than they had prior to 1945, together with the combination of Winchester M70 rifles and high-power Unertl sights that had not gained widespread acceptance in the Pacific during World War II.

March 1961: a Cuban exile, probably in Florida or Guatemala, aims an M1941 Johnson autoloading rifle as he trains for an invasion of his home island to fight the popular government of Fidel Castro. In some cases, World War II-era sniping weapons remained in service for decades after 1945. (Lynn Pelham/Getty Images)



US serviceman Private Charles P. Coopers peers through the M84 telescopic sight of his M1C or M1D sniping rifle with M2 flash hider, introduced toward the end of World War II and widely used in the Korean War. During World War II, many commentators believed the M1C and M1D Garand sniping rifles were far from perfect. Offsetting the optical sight, to facilitate reloading and allow the en-bloc cartridge-clip to eject automatically when empty, was a particular bone of contention. In addition, some observers felt that the moving parts of the semiautomatic action could adversely affect strike-point at longer ranges. (PhotoQuest/Getty Images)

Two US servicemen, equipped with M1903A4 rifles fitted with Weaver sights, pose with a Japanese flag taken as a trophy. (Tom Laemlein/Armor Plate Press)



In US service, another lesson could be found in the gradual reduction in the issue of autoloading sniping rifles in favor of sporting rifles such as the Winchester M70 and the Remington M700. Most trials – and, subsequently, US combat experience in Vietnam – showed that the bolt-action rifles, owing largely to the absence of breech-movement during the firing cycle, shot more accurately than the M1C and M1D Garands.

It is no coincidence, therefore, that most of today's sniping rifles are bolt-action designs. The origins of some, such as the Remington M40, M40A1, and M24, lie in sporting rifles. The British 7.62mm L42A1 was basically a modernized No. 4 Mk I (T), and thus a direct descendant of the Lee-Enfields of the two World Wars, whereas Accuracy International's highly successful 7.62mm L96A1, and its successors such as the L118A3, are purpose-built precision firearms incorporating as many lessons as possible learned from preceding sniping rifles.

The one exception to the supremacy of the manually operated sniping rifle has been the Soviet/Russian 7.62mm SVD rifle, but even the Russian forces ultimately sought to replace the Dragunov with purpose-designed bolt-action sniping rifles.

Another technological advance can clearly be seen in sighting equipment. Snipers serving in the Asia-Pacific Theater occasionally enlisted the help of optical rangefinders to ensure their shots counted. Though good-quality optical sights are still encountered, today's marksmen have access to laser-rangefinders, red-dot target designators, and electronic systems that can effectively include factors such as ambient temperature and crosswind in calculations of aim-point. Ultimately, though, hitting the target still relies greatly on the individual shooter's skills, training, and concentration.

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Dedication

To Alison, Adam, Nicky, Findlay, Georgia, Holly, and the menagerie (Maggie, Roly, Dennis, and Bruno) – with love.

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Front cover, above: Type 99 with the standard 4× Type 99 telescopic sight. This particular rifle has antiaircraft “lead bars” fitted to the back sight. (Rock Island Auction)

Front cover, below: A US serviceman takes aim with his M1903A4 Springfield sniping rifle, fitted with the standard M73B1 sight. (Tom Laemlein/Armor Plate Press)

Title-page photograph: Clearly photographed while practicing on the range, this Japanese sniper takes aim through a Type 97 sight attached to his Type 97 sniping rifle. Note the elongated bolt-handle, its shank bent downward to clear the sight during reloading. (Author's archives)